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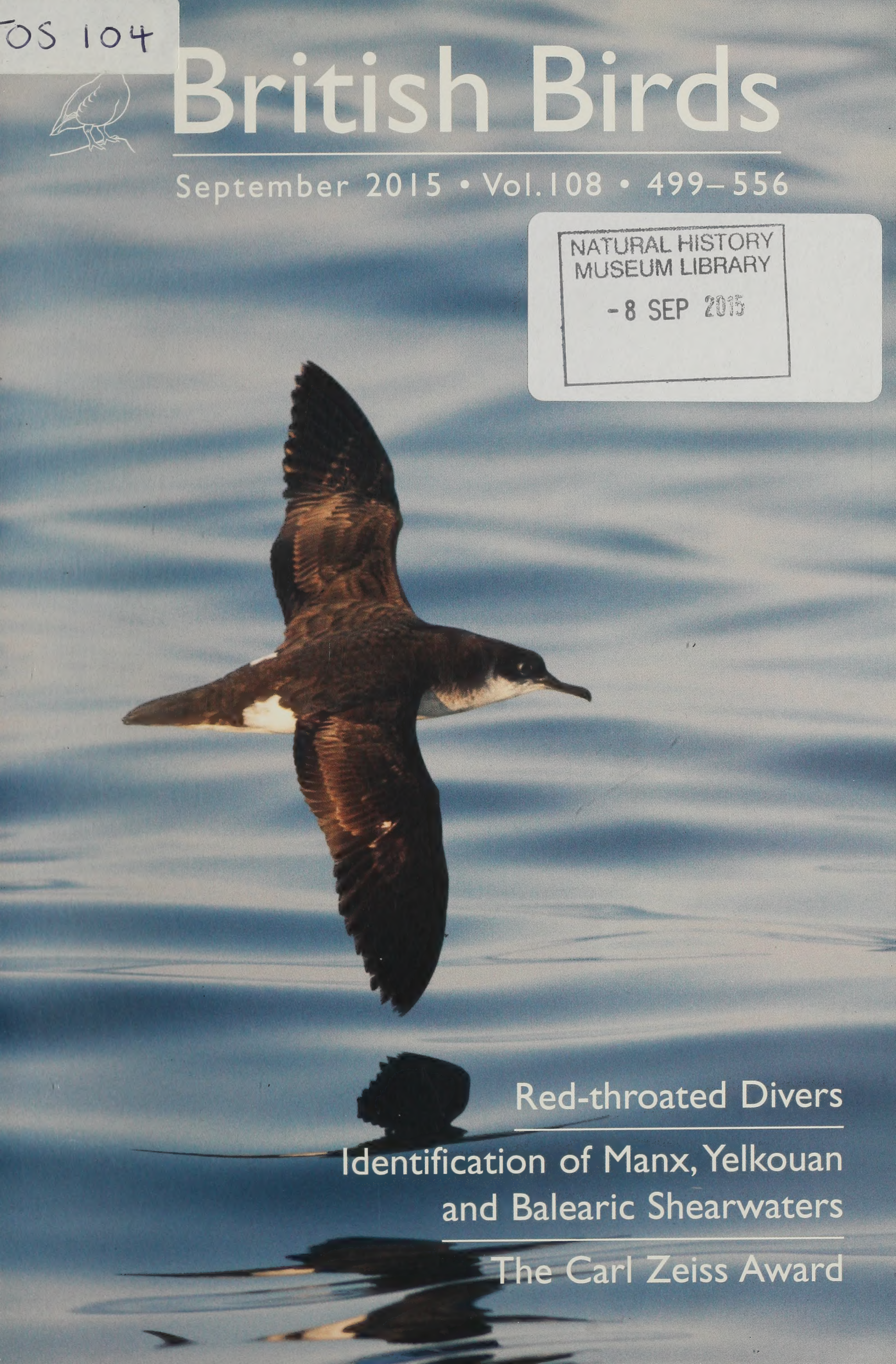

Red-throated Divers

Identification of Manx, Yelkouan and Balearic Shearwaters

The Carl Zeiss Award

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Front-cover photograph: Manx Shearwater *Puffinus puffinus*, Fuseta, Portugal, August 2010.
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In the past 10–15 years we have seen how digital cameras have become increasingly sophisticated, and affordable, and there are plenty of references in *BB* during that time to the effect this has had on birders. The realm of rarities and record assessment is one area where the impact of the digital format has been huge, and the Carl Zeiss Award, presented at last month's Birdfair and described in detail in this issue, is an obvious example. Nowadays, at almost every rarity, there is someone with a capable camera lens and some idea of how to use it, and the results add enormous value to field observations. Identification papers, such as the one in this issue on the Manx, Yelkouan and Balearic Shearwater complex, also benefit enormously from digital photographs. Away from breeding colonies, seabirds are among the hardest of groups to photograph well, and 10–15 years ago it would have been unthinkable for the authors of a paper like this to have had so many good images to choose from. The use of digital photography in the first paper in this issue, which describes the results from an aerial survey of the Thames Estuary, will be less familiar to most readers, however. And in this case those results tell us significantly more than was possible using conventional survey methods: in short, record numbers of wintering Red-throated Divers in one of the busiest offshore areas for shipping in the UK. Clearly there is much more to digital cameras than taking pretty pictures of an obliging rarity.

Roger Riddington

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BB eye

The role of the Nature Directives – lessons from the Thames Estuary

In the early 1970s, the news of a proposal to build London's third airport off the coast of Essex, at Foulness on Maplin Sands, was greeted with dismay by conservationists. At that time, dismay seemed the only possible reaction, largely because we simply didn't have the evidence to state clearly what was at risk and why the proposal was flawed. Maplin collapsed under its own economics following the oil crisis that began in 1973 and so the Thames Estuary escaped death by airport; but it was brutally clear that saving our best places for wildlife without hard evidence was not a credible strategy.

The 1970s was a decade of transformation in our understanding of the scale of threats to the natural world, and how we could protect it. Central to this was evidence. In 1971 the Convention of Wetlands of International Importance was signed in Ramsar, on the shores of the Caspian Sea. It established criteria for designating sites for protection, based on evidence. Closer to home, the Birds of Estuaries Enquiry began in winter 1969/70, as a direct response to a number of proposed major developments around the UK's coastline. Together with National Wildfowl Counts, these surveys provided the foundations for modern-day WeBS (Wetland Bird Survey) counts, through which an army of volunteers now generate the hard evidence necessary to defend our finest wetlands.

The 1970s ended with a series of international conventions. The Bern Convention (covering the Conservation of European Wildlife and Natural Habitats in Europe and some African states) and the Bonn Convention (on the Conservation of Migratory Species of Wild Animals) were both hugely influential in driving forward effective nature conservation. At the same time, in 1979, the European Economic Community passed the Birds Directive into law. The UK signed up to the Birds Directive in the last days of the Callaghan Labour Government, in what was arguably the pivotal moment in the history of UK nature conservation in the twentieth century.

An essential principle of the Birds Directive was to ensure a level playing field across the then Common Market – sending a clear signal that it was unacceptable to destroy natural resources in pursuit of competitive advantage. The Birds Directive was joined in 1993 by the Habitats Directive and, together, these two instruments have formed the backbone of nature conservation in many European countries to the present day. But any legal framework is only as good as its implementation, and so the key question is: have they worked?

At a broad scale, one statistic stands out – the loss and damage of Sites of Special Scientific Interest (SSSI) in the UK was running at 12% a year in the 1970s. Conservation seemed often to be little more than a process of bearing witness to the progressive loss of our natural world. The 1981 Wildlife and Countryside Act (which translated the Birds Directive into UK law) helped to stop the rot, and the rate of loss of our finest wildlife sites slowed dramatically.

And, at a finer scale, there is now a body of evidence to show that, when properly implemented, the Birds Directive has been effective at improving the fortunes of species that are listed under Annex I as requiring special conservation measures. Recently published research in the journal *Conservation Science* clearly demonstrates that, for Annex I species, the Birds Directive has not only been highly effective at improving their conservation status, it is the single biggest determinant of their fate. This is regardless of habitat preference, and takes into account factors such as life history and migratory status, as well as external drivers of population decline such as climate change. Furthermore, Annex I species fare better in countries that have been EU members for longer – while previous research published in the journal *Science* showed that they also do better in countries with more and bigger SPAs. In the UK, iconic species such as Red Kite *Milvus milvus*, Eurasian Bittern *Botaurus stellaris*, Avocet *Recurvirostra* *avosetta*, White-tailed Eagle *Haliaeetus albicilla* , Dartford Warbler *Sylvia undata* and Woodlark *Lullula arborea* have all benefited enormously from the protection they are afforded by the Birds Directive.

The evidence is unequivocal: the EU's Nature Directives are effective when implemented properly. However, there are serious gaps in implementation, especially in the marine environment. It is in this context that over 100 organisations have provided evidence to the REFIT consultation of the EU Nature Directives to stress that the Directives *are* fit for purpose and the focus should be not on reform but on implementation. Even a cursory look back to the years before the Directives kicked in should give us pause for thought – any weakening of the thin legal line that has sustained some of the EU's finest wildlife is a cause for substantial concern. The REFIT consultation is now over, the arguments have been made and over half a million individuals across the EU have made their views clear to the Commission – the Directives must not be revised and put in grave danger of being weakened.

Of course, given the huge challenges that face the natural environment, now is not a time to relax. The Directives provide a toolbox for protecting and restoring habitats and species, but while some of these tools are well used, others are under-utilised and some have never been brought out of the box. We need to focus on implementing the Nature Directives properly, so that they can fulfil their potential to protect and restore nature. For instance, this means filling in the gaps in the protected areas network, making sure these sites are properly managed for wildlife, and making sure that action to protect nature is not confined to protected areas, but is extended to the wider landscape – just as the Directives intended originally. We also need to do far more to stop the drivers of decline. Even with the best legislation in the world, if we don't address issues such as the Common Agricultural Policy providing perverse subsidies that lead to environmental degradation, we will always be swimming against the tide.

Moreover, the Directives have the potential not only to protect the nature that we still have left, but also to restore some of what we've lost at such an alarming rate in the last 60 years. A great example of this restorative approach came earlier this year when the sea wall at Wallasea Island was breached, and the sea returned to part of the Essex coast within a wingbeat or two of Maplin Sands, just across from neighbouring Foulness. As the tide trickled into a landscape restored using the spoil from Crossrail's tunnels, a new era for this part of our coast began. Funding from the Environment Agency kick-started the project – directly driven by its duty under the Nature Directives to restore coastal habitats lost, in this case caused by sea-level rise due to climate change. Indeed, the inspiration for Wallasea as a location for this transformative project was the earlier use of part of the island as suitable compensation for migratory birds disadvantaged by the loss of Lappell Bank in Kent's Medway Estuary.

Compensation for Lappell Bank was hard-won, subsequently becoming vital case law in understanding the implementation of the Directives and making sure they do what they are supposed to do. Across the UK and, indeed, across the EU there are many examples of species and landscapes that have survived because they are protected by the Directives, or their recovery has benefited from funding directly linked to the Directives.

At the inception of the Birds Directive we were engaged in a great deal of soul-searching about the future of nature conservation in Britain. Since then, nature has continued to decline and a renewed and reinvigorated approach is needed to tackle today's challenges. What is certain, however, is that ripping up the Nature Directives in a flawed attempt to revise them would be the worst possible place to start.

Andre Farrar (RSPB Planning and Strategy Manager, left) and Brendan Costelloe (RSPB Senior Policy Officer, right)

News and comment

Compiled by Adrian Pitches

Opinions expressed in this feature are not necessarily those of *British Birds*

Hen Harriers – cause for celebration

Despite the suspicious disappearances of no fewer than *five* nesting male Hen Harriers *Circus cyaneus* in England this spring (*Brit Birds* 108: 369), and the subsequent loss of their nests and eggs after the females abandoned them, there were six successful nests in 2015.

Natural England (NE) has announced that 18 young harriers fledged from six nests in northern England, including sites in Northumberland, Cumbria, Co. Durham and Lancashire. An additional seventh nest – which was close to fledging young – unfortunately failed late in the season, due to natural causes.

Rob Cooke, NE's Director of Terrestrial Biodiversity, said: 'Six nests is a small number, but it is actually more than we have seen in total over the past three years – which is a significant and positive step forward. Obviously we need to see many more pairs of these iconic birds nesting successfully and we are actively looking at how we and our partners can build on this positive outcome in the future.'

Chairman of the Moorland Association, Robert Benson, said: 'Grouse moor managers have played a significant role in protecting nests and in this year's success, which is very welcome. However, we need to do more for Hen Harriers. With government help, via a Hen Harrier action plan, numbers and the spread of nests next year could be even better, buffering the effects of poor weather and predation.'

Fledged chicks were fitted with satellite tags by the RSPB EU-funded Hen Harrier LIFE+ project and by NE, and their progress closely monitored. Satellite-tag technology is improving rapidly and these latest tags will provide even more detailed information on how birds move around the landscape and the factors which currently limit the population. Tags like these also helped confirm that a Hen Harrier found dead on a grouse moor in southwest Scotland in late April had been illegally shot.

Hen Harriers – pause for reflection

The second Hen Harrier Day, on 9th August, was marked by events at seven locations in England, Scotland and Wales – stretching from Argyll to Dorset. The main event was a high-profile gathering in the Goyt Valley, Derbyshire, attended by Mark Avery and Chris Packham, at which this arresting photo was taken: a group of young people holding a funeral for the Hen Harriers killed through criminal persecution (plate 282).

A coffin was carried in mourning for the loss of these charismatic birds, which have been slaughtered since Victorian times. Banners in period font read 'Raptor Death Zone', 'I've never seen a Hen Harrier because of you' and 'Burned, drained and ruined – we want our moors back'. All but three of the cortege had never seen a living Hen Harrier.

282. Funeral for the Hen Harrier, Derbyshire, August 2015.

Chris Packham

Chris Packham said: 'These kids won't have a chance of inheriting rich, beautiful, productive and sustainable ecosystems if we don't ensure their survival, and in this case that means stopping this criminal element now and addressing the complete mismanagement of our moorland before it's too late.'

Mark Avery added: 'We are all being robbed of our wildlife. This theft must stop. What is our Government doing about wildlife crime on the grouse moors of Britain – not nearly enough!' Mark Avery has launched a fresh e-petition on the Government website to ban driven grouse shooting https://petition.parliament.uk/petitions/104441 If 100,000 people sign, it will trigger a debate in Parliament. By 12th August the number of signatures was approaching 12,000.

Moors wars of words

The run-up to this year's grouse-shooting season was marked by an exchange of fire between the shooting pressure group *You Forgot The Birds* (fronted by Ian Botham) and the RSPB.

The RSPB threw down the gauntlet at the CLA Game Fair in Yorkshire on 31st July when Mike Clarke, the RSPB Chief Executive, challenged the shooting industry to clean up its act (see below). *YFTB* then used the *Daily Telegraph* to allege that the five failed Hen Harrier nests (four in Bowland, Lancashire, and one at RSPB Geltsdale, Cumbria) were a consequence of disturbance by RSPB nest watchers! The RSPB responded by saying that the allegations made against RSPB staff and volunteers are extremely serious, and the charity urges anyone with any evidence of nest disturbance, whatever the source, to contact the police. The RSPB stands fully behind its staff and local volunteers.

The RSPB totally refutes all allegations made by *YFTB*. The failure of the majority of these nests has been caused by male Hen Harriers disappearing mysteriously while on hunting flights away from the nest. Predation by crows, stoats or foxes was *not* the cause of these nest failures.

Jeff Knott, RSPB's Head of Nature Policy, said: 'We totally refute this particular group's latest allegations. We do not see how the disappearances of male Hen Harriers while away from the nest can have anything to do with the nest itself, especially when the females remained at the nest patiently waiting for the return of the males. Across the UK in 2014, 49 pairs of Hen Harrier – around 8% of the UK total – nested on RSPB reserves.'

The Government-published document – the Hen Harrier Conservation Framework – cites that the principal reason for the poor conservation status of the Hen Harrier rests with illegal persecution. Jeff Knott added: 'It is encouraging that some Hen Harriers have nested successfully in grouse moor areas this year. But a government report suggests there should be over 300 pairs of Hen Harriers in England, so there's more to be done. The Hen Harrier is an iconic bird absent from vast swathes of our uplands.'

RSPB challenges the shooting industry

The RSPB's Chief Executive, Mike Clarke, chose the Game Fair as the venue for a speech calling on the shooting industry to take responsibility for both the positive and the negative impacts their industry has on the wider public interest, including biodiversity and the natural environment. He said: 'There are two key trends. First, is the continuing increase in gamebirds released into the environment, now well over 50 million birds a year. It is ecologically naive to think that you can introduce this amount of biomass – of a similar magnitude to the biomass of all the wild birds in the countryside – without any impact on native species populations and food webs.

'Secondly, there is a marked increase in the intensity of management on some driven grouse moors in the uplands, especially in England. As many of us know, our uplands are some of our most iconic landscapes, both for services they give people – such as water and as a carbon store – and for wildlife.'

One of the intensive management practices carried out on some driven grouse moors is rotational burning of heather. A study led by the RSPB Centre for Conservation Science revealed the extent of moorland burning across Britain's upland areas and the damage it can cause. Burning was detected in 55% of Special Areas of Conservation (SACs) and 63% of Special Protection Areas (SPAs) assessed in the study, and significantly more burning took place within them than on comparable moorlands outside. These sites are designated under EU legislation for their conservation importance, and governments are charged with protecting them from damage and ensuring that they are restored to the best condition. However, many SACs and SPAs are in unfavourable condition, with burning identified as a primary reason for this poor status.

David Douglas, lead author of the study, said: 'Upland ecosystems are highly sensitive to burning practices. Knowing how much burning takes place and where is crucial to developing sustainable land-management policies for these precious environments.'

This study, published in *Biological Conservation*, is the first in which upland burning has been mapped in detail across mainland Britain. Using aerial photography and satellite images, 45,000 1-km squares were mapped across Scotland, England and Wales, and revealed that burning occurred across 8,551 of these squares. From 2001 to 2011, the number of burns recorded increased by 11% each year. Other studies have found that the potential number of Red Grouse *Lagopus lagopus* shooting days in some areas of Britain has risen over a similar period, and moorland management has also intensified.

Acknowledging the calls for a ban on driven grouse shooting (see above), Mike Clarke concluded his speech by confirming that the RSPB does not support those calls. 'But the longer it takes any industry to address its problems, the stronger those calls will become. We will speak out and act on the impacts of that activity when they have a negative effect on biodiversity and the natural environment. And we believe that current behaviours require stronger regulations to ensure responsible practices.'

(Another) cabinet reshuffle at *BB*

Further changes to the *BB* board were confirmed last month, with the departure of John Eyre from the board of BB 2000, the company that produces *BB*. John, who joined the board in 2002 and took over as chairman in 2006, has earned his respite from the challenges of managing a diverse group of directors and staff. He will remain closely linked with the journal, however, becoming a trustee of the *British Birds* Charitable Trust early next year. In his place as chairman comes Adam Rowlands, well known to readers from his time as chairman of BBRC. We welcome Adam to the hot seat and wish him well.

SBN goes digital

From 1986 to 2009, the Scottish Ornithologists' Club (SOC) published a quarterly magazine, *Scottish Bird News*. It is an important record of SOC activities over that period and the Club now wishes to make that record more widely available through the Biodiversity Heritage Library (www.biodiversitylibrary.org). The SOC is now seeking to contact any past contributor who does not wish to have their material included in free digital access: please contact them via mail@the-soc.org.uk as soon as possible.

Bee-eaters breed in Cumbria

For the second year running, European Bee-eaters *Merops apiaster* have bred in Britain. Two pairs have nested at a sand quarry near Brampton in Cumbria.

Last year, two pairs successfully raised eight chicks on the Isle of Wight and prior to this, a pair raised young in Co. Durham in 2002. The first nesting in modern times was at Streat Sand Quarry, near Plumpton in East Sussex, in 1955: three pairs nested and two of the pairs eventually reared seven young.

Mark Thomas, from the RSPB, said: 'Bee-eater sightings have really been on the increase in recent springs and we're delighted to confirm they are breeding in the UK for the second consecutive summer. Pushed northwards by climate change, it is highly likely that these exotic birds will soon become established visitors to our shores.'

Nick Franklin

283. One of the nesting European Bee-eaters *Merops apiaster* in Cumbria, June 2015.

If it ain't broke, don't fix it – the EU Birds Directive works

The European Union Birds Directive, currently under review in Brussels, has had a huge impact in protecting Europe's most threatened bird species – including many in the UK, says new research published in *Conservation Letters* by the RSPB, BirdLife and Durham University.

The research reveals that the most consistent single determinant of a species' fate is whether or not it is afforded the highest level of protection under the Birds Directive. In the language of the Birds Directive this means whether a species is listed under Annex I or not. The research also shows that Annex I species fare better in those countries which have been EU members for longer.

The RSPB's Fiona Sanderson, lead author of the paper, said: 'We analysed information on all bird species breeding across the EU. Our findings confirm that species with the highest level of protection under the Birds Directive, such as Dalmatian Pelican *Pelecanus crispus*, Eurasian Spoonbill *Platalea leucorodia*, Griffon Vulture *Gyps fulvus* and Greater Flamingo *Phoenicopterus roseus*, are more likely to have increasing populations, and that these results are most apparent in countries that have been members of the EU for longer.'

Martin Harper, the RSPB's Conservation Director, said: 'With such strong evidence of the effectiveness of Europe's nature laws, coupled with record levels of public support across Europe, the European Commission has a strong mandate to ensure these laws are maintained. These laws are delivering for Europe's nature and its citizens, and now is not the time to jeopardise the effectiveness of these laws and the progress made. Instead, we should realise the full power of the laws, and implement them to help more species.'

The scientists used information from two time periods: the last 30 years and the last 12 years. They then analysed the population trends separately, with the results highlighting the benefits of protection of the Birds Directive. Using some clever statistics to exclude other factors, such as changes in climate and habitat, the researchers found clear evidence that the majority of species prioritised for action under the Birds Directive are responding positively and directly to the level of protection. Paul Donald, another co-author, said: 'Our research proves that, in an era of unprecedented climate change and habitat loss, those threatened birds protected by the Birds Directive are more likely to prosper.'

Information from other reports shows that in the UK a number of Annex I species are faring better, compared with species that don't enjoy the same level of protection. Over a 25-year period the following UK breeders, listed under Annex I, increased by the following percentages: Eurasian Bittern *Botaurus stellaris* (567%), Red Kite *Milvus milvus* (2,054%), White-tailed Eagle *Haliaeetus albicilla* (850%), Marsh Harrier *Circus aeruginosus* (988%), Osprey *Pandion haliaetus* (462%), Corn Crake *Crex crex* (163%), Avocet *Recurvirostra avosetta* (504%), European Nightjar *Caprimulgus europaeus* (114%) and Dartford Warbler *Sylvia undata* (663%).

The Strait of Dover Project

The Strait of Dover is one of the most important flyways for migrating and wintering birds in the Western Palearctic. In April 2014, a meeting organised by the Parc Natural Regional des Caps et Marais d'Opale (PNRC) was held at Ambleteuse, Pas-de-Calais, with representatives from several French groups interested in bird migration in the Strait of Dover, and from Dungeness Bird Observatory (DBO). At the same time, *La migration des oiseaux sur le littoral du Pas-de-Calais* was published. The book is now available free online, in both French and English, at: www.parc-opale.fr/bibliotheque.asp?rub=1

As a result of the meeting it was considered that efforts should be made to establish coordinated observations between the English and Continental coasts. A study area was defined as between Cap de l'Hague (France) and St Catherine's Point (Isle of Wight) in the west and Breskens (the Netherlands) and North Foreland (Kent) in the east. On 15th July 2015 another meeting took place, this time at Dungeness, again with representation from both French (PNRC, Groupe Ornithologique du Nord, Eden 62 and Cap-Ornis Baguage) and English sites (DBO and Sandwich Bay BO). It was agreed to set up a pilot scheme of standardised recording for a limited number of species common to both coastlines and for this to start in autumn 2015. The results will be analysed and discussed in February 2016; after which it is hoped to extend the project to include other species and perhaps also other sites.

(Contributed by Philip Redman)

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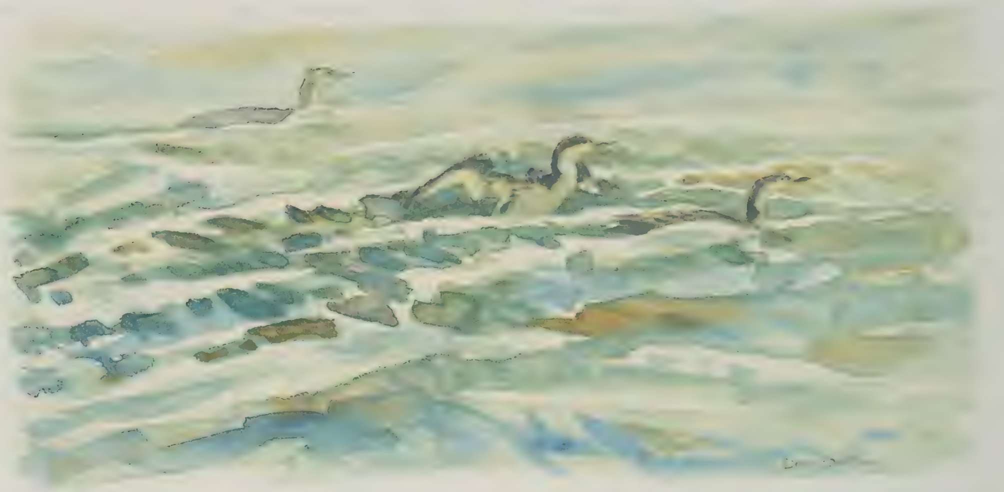
Surveys of Red-throated Divers in the Outer Thames Estuary SPA

Nicola Goodship, Richard Caldow, Stuart Clough, Rebecca Korda, Stephanie McGovern, Natasha Rowlands and Mark Rehfisch



Dan Powell

Abstract The Outer Thames Estuary SPA is designated for wintering Red-throated Divers *Gavia stellata*. Observer-based aerial surveys carried out between January 1989 and winter 2006/07 found 6,466 birds, some 38% of the latest estimate of the British wintering population. In February 2013, aerial surveys using high-resolution digital photography suggested that 14,161 Red-throated Divers were present in the SPA, the highest number ever found in one place in northwest Europe. While diver numbers recorded in the SPA have increased, it is also possible that earlier surveys underestimated the numbers present.

Introduction

The Red-throated Diver *Gavia stellata* is a migratory species with a circumpolar distribution. It breeds primarily in Arctic regions of the northern hemisphere, generally north of 60°N; in western Europe, the species breeds in suitable habitat throughout northern Scandinavia and Iceland, and locally in Ireland and Scotland. In Europe, the main wintering area extends from the North Sea as far south as the Atlantic coast of Portugal, and also includes the Mediterranean and the Black Sea (www.birdlife.org). In Britain and Ireland, Red-throated Divers occur in winter along all coastlines (Balmer *et al.* 2013), but large numbers congregate off southeast England, especially in the Outer Thames Estuary.

The Red-throated Diver is listed under Annex I of the EU Birds Directive

(79/409/EEC) as a rare or vulnerable species, meaning that EU member states are required to identify and designate key areas of habitat used by the species as Special Protection Areas (SPAs). Any site supporting 1% or more of the Great Britain population of an Annex I species meets a Stage 1 selection criterion, as set out in the SPA selection guidelines applied in the UK (Stroud *et al.* 2001).

The Outer Thames Estuary SPA (fig. 1) is designated for Red-throated Divers, which spend the winter in this area in nationally important numbers. The most recent estimate of the wintering population in Great Britain (GB) is 17,116 individuals (O'Brien *et al.* 2008), representing some 10–19% of the non-breeding population of northwest Europe. The Outer Thames Estuary SPA was designated in 2010 for regularly supporting 6,466 individuals, 38% of the estimated GB population (JNCC 2011).

Estimates for the wintering population of Red-throated Divers have been derived from studies using observers positioned on the shore, on a survey ship or in a small aircraft. Observer-based surveys from boats and aircraft have identified much larger numbers wintering in British coastal waters than those by shore-based counters; even so, the GB wintering population estimate, based largely on counts made by observers in aircraft, was still considered to be an underestimate due to gaps in survey coverage (O'Brien *et al.* 2008). The designation figure of 6,466 wintering birds in the Outer Thames Estuary SPA was derived from observer-based aerial surveys carried out between January 1989 and winter 2006/07 (NE & JNCC 2010; JNCC 2011). Data were compiled and analysed by JNCC as part of the initial assessment of the area's potential to qualify as a marine SPA (Webb *et al.* 2009).

In the light of the development of new survey techniques, Natural England (NE) has initiated a programme of work to gather new data on the GB wintering population of Red-throated Divers, with a view to assessing the need to revise the existing baseline population estimate for the Outer Thames Estuary SPA. This paper reports on the results of the first-ever aerial survey of the Outer Thames Estuary SPA using high-resolution digital photography, commissioned by NE to provide an up-to-date population estimate for the SPA.

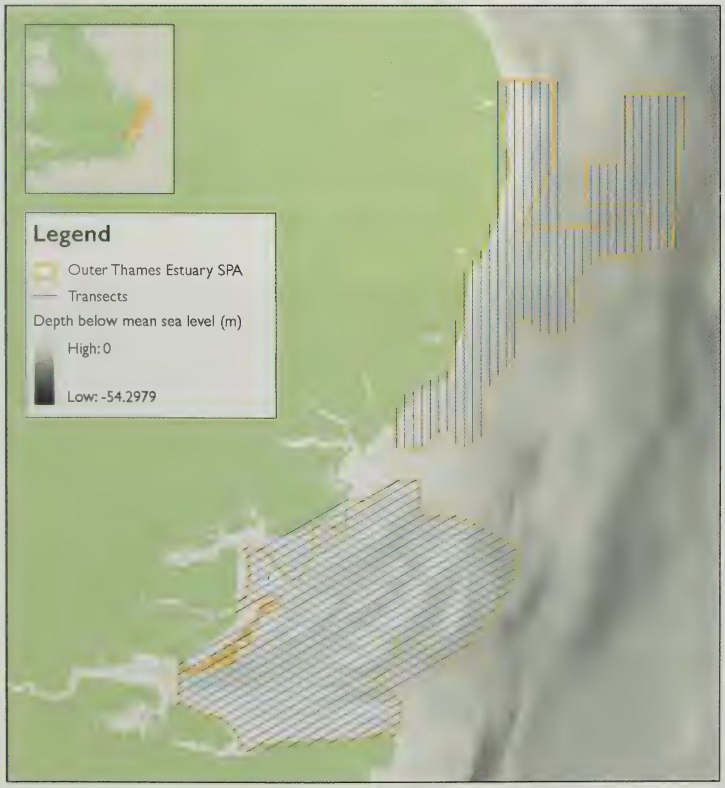


Fig. 1. The Outer Thames Estuary SPA showing the aerial survey transect lines.

Methodology

Survey design

The Greater Thames, which encompasses the Outer Thames Estuary SPA, is the largest estuary complex in Britain. It is located on the east coast of England and includes the inshore areas stretching from Great Yarmouth (Norfolk) in the north to Dover (Kent) in the south (Webb *et al.* 2009). January and February have been identified as the peak months for Red-throated Divers overwintering in the Greater Thames Estuary (Webb *et al.* 2009). The numbers observed during this period are likely to represent pre-migration aggregations, since breeding birds typically return to their nesting grounds in March and April (Wernham *et al.* 2002).

Two aerial surveys using high-resolution digital photography were undertaken in January (26th and 27th) and February (9th, 11th and 12th) 2013 over the Outer Thames Estuary SPA. Some 63 transect lines were surveyed; the transects were spaced 1.8 km apart and evenly distributed across the SPA (fig. 1), and the same lines were flown for both surveys. Contiguous digital images were collected along each transect line; transect lines rather than individual images were used as the independent sampling unit for design-based analysis, since the latter could not be treated as independent. With transects 1.8 km apart, this meant that a representative sample (15%) of the SPA was surveyed in each month. The five years of experience that APEM has of surveying divers in the Thames Estuary (APEM 2011) indicated that such an intensity of coverage would allow the numbers of divers to be estimated sufficiently precisely to ensure that future surveys with similar coverage should be able to detect a halving or a doubling of diver numbers in a statistically robust manner. Further details can be found in the data analysis section.

Data collection

A Vulcanair P68 Observer twin-engined aircraft was used for the surveys. The surveys were flown at 120–140 knots. High-resolution digital photographs (fig. 2) were collected and stored using a Leica RCD30 camera. The camera was operated by a specialist technician and images were taken through an opening in the floor of the plane. The images were collected with a 3 cm ground sampling distance (GSD) resolution (i.e. each pixel represents an area of 3 cm × 3 cm at ground level).

The digital images were downloaded and analysed by trained staff. From the images, each bird was identified to species, its geographical position (easting and northing coordinates) noted and logged with date and time of the image. As standard practice, the digital images were subject to both internal and external Quality Assurance (QA) checks. The bird images (e.g. fig. 2; see also Appendix 1) were reviewed and checked internally by a specialist QA manager at APEM Ltd and, independently, by BTO scientists, who provided external quality assurance for seabird identification. This process for the identification and enumeration of birds from aerial photographs is unique in being accredited by the UK Accreditation Service (no other image analysis process has been effectively peer-reviewed in this way). Using commercially sensitive methods developed by APEM, from 3 cm GSD imagery highly trained

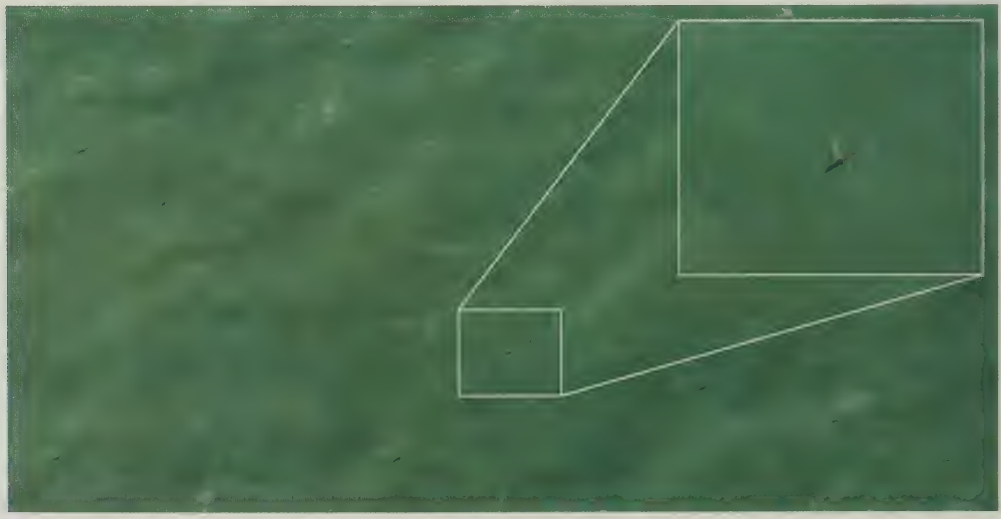


Fig. 2. Digital aerial survey photograph of Red-throated Divers *Gavia stellata* in flight, with one diver enlarged in top right-hand corner. This is a 3 cm GSD image.

analysts can identify with complete confidence to species over 90% of individual Red-throated Divers and over 70% of individual Black-throated Divers *G. arctica.* These percentage identification rates become even higher if 'probable' individuals of the two species are included. The identification is based on differences in size between the species and on the location of certain field marks, especially pale plumage areas. The Outer Thames survey recorded several species of seabirds and waterbirds other than divers; these are discussed further in Appendix 1.

Data analysis

The number of Red-throated Divers present in the sample area was extrapolated to the entire SPA using design-based modelling (Borchers *et al.* 2002). Confidence limits (CL) showing the extent of variability surrounding the abundance estimate were calculated using a non-parametric bootstrap method (Borchers *et al.* 2002). The upper and lower 95% confidence intervals of all the bootstrapped abundance estimates were taken as the variability of the statistic over the population (Efron & Tibshirani 1993). Measures of precision were calculated using a negative binomial estimator, suitable for a pseudo-Poisson over-dispersed distribution (Elliott 1977). This produced a CV (Coefficient of Variation) based on the relationship of the standard error to the mean. The target precision for the surveys of ≤0.16 achieved allows the detection of a doubling or halving of the numbers of individuals between surveys (Bohlin 1990).

Results

The peak estimate of 14,161 Red-throated Divers recorded in February 2013 (table 1) represents 83% of the most recent estimate of the GB wintering population (O'Brien *et al.* 2008), and is more than twice the current designated population of 6,466 in the Outer Thames Estuary SPA (O'Brien *et al.* 2008; Webb *et al.* 2009). The survey results reported here represent the largest aggregation of divers ever observed in a single site in UK waters or elsewhere in Europe.

Red-throated Divers were recorded in both the northern and the southern parts of the Outer Thames Estuary SPA, although they were not distributed evenly throughout. The highest densities were recorded in the southern part of the SPA, especially towards the centre and northeast of that area (fig. 3).

Discussion

Digital aerial survey techniques

Digital aerial surveys offer several advantages over other survey methods, especially when it comes to recording species that are sensitive to disturbance. Red-throated Divers avoid boats at a distance of up to 2 km, which leads to the likelihood of under-recording by boat-based survey methods (Camphuysen *et al.* 2004; JNCC 2010; Schwemmer *et al.* 2011). Visual aerial surveys have typically been flown at an altitude of c. 80 m to allow observers to identify the birds (Camphuysen *et al.* 2004). However, at this altitude there is a significant risk of birds being flushed from the water and either missed or counted twice. Digital aerial surveys are carried out at an altitude of about 300 m, which means that birds are much less likely to be disturbed by the survey aircraft and consequently there is lower bias in the data collected. Aerial surveys can be carried out at short notice and can cover large areas rapidly, which minimises temporal variation in the bird counts and reduces the risk of double counting compared with boat surveys. The technique is increasingly popular for the survey of large areas as it presents substantial cost savings over traditional boat-based surveys.

It is possible to identify most seabirds and marine mammals to species from digital images with a pixel ground resolution of 3 cm × 3 cm, and it is often also possible to separate age classes of species such as

Table 1. Monthly counts, abundance estimates, lower (LCL) and upper confidence limits (UCL) and precision (CV) for Red-throated Divers *Gavia stellata* recorded in Outer Thames Estuary SPA.

	Count	Estimate	LCL	UCL	CV
January 2013	1,675	11,248	8,649	14,155	0.14
February 2013	2,132	14,161	8,230	22,245	0.07

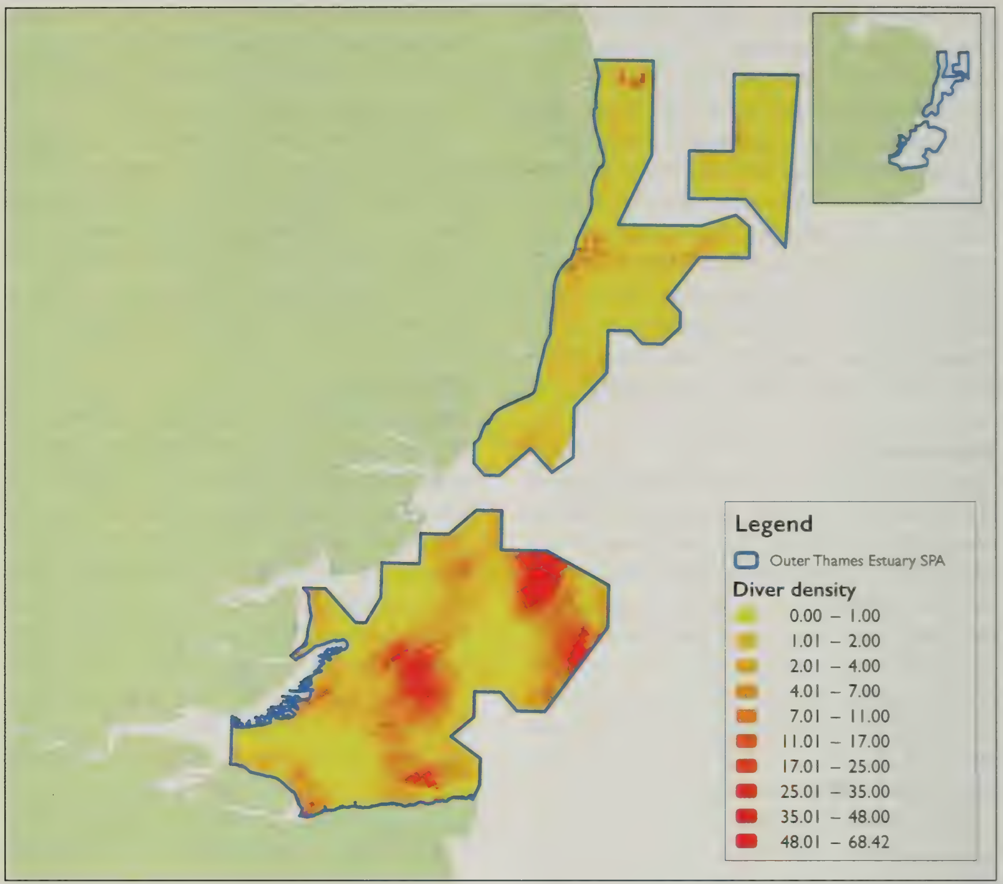


Fig. 3. Modelled distributions of Red-throated Divers *Gavia stellata* in the Outer Thames Estuary SPA during February 2013. Diver densities are predicted on a grid of 1 km resolution across the SPA on the basis of a statistical model fitted to the underlying diver survey data (for details see APEM 2013)

Northern Gannet *Morus bassanus* and large gulls at this resolution. Another major advantage over most other survey techniques is that digital aerial surveys generate a fully auditable, permanent record of survey images. These images can be reanalysed if there are any doubts about species identification and they can be archived to answer future questions of biological interest.

Changes in occurrence patterns

Past estimates of Red-throated Diver numbers in the wider Greater Thames area have been shown to be highly variable between years. For example, peak population estimates have ranged from 2,460 individuals in January 2002 to 10,884 in January 2003 (although coverage of the area and the number of transects surveyed has varied between years; Webb *et al.* 2009). Prior to the surveys reported here, the most recent five-year mean peak (2002/03–2006/07) for Red-throated Divers across the Greater Thames area was 6,618 individuals (Webb *et al.* 2009). Although the Outer Thames Estuary SPA covers only c. 379,268 ha of the Greater Thames area (over 900,000 ha), the peak estimate recorded by these 2013 surveys was generally higher than peaks recorded in the Greater Thames area in previous years.

Divers are known to be highly mobile over large areas in winter, with some large-scale movements over short timescales (DTI 2006). A range of factors may explain inter-annual variation of diver abundance and distribution, including: environmental variables, diurnal movements and the potential effects of construction activity in the area, or indeed a combination of all three. Environmental variables, such as changes in weather patterns, may have a positive or negative effect on diver numbers and distribution on their wintering grounds. Abundance and distribution is also strongly linked to the divers' preferences for shallow water areas around sandbanks (Skov & Prins 2001), which of course is strongly affected by the state of the tide. At times when tides are near to or at their lowest, divers can be distributed around the edges of exposed sandbanks, and at these times, modelling predicts the lowest availability of suitable habitat within the Outer Thames Estuary SPA (Henrik Skov pers. comm.). Sandbanks may provide feeding habitat for divers since sandeels, herrings and sprats are known to use sandbanks as nursery and feeding grounds (NE & JNCC 2010). Diver distribution may also be related to hydrographic variables, since eddies and current speed help to predict their distributions (Henrik Skov pers. comm.).

Red-throated Divers avoid areas with a high density of shipping (Schwemmer *et al.* 2011), and at least some operational offshore windfarms (Petersen *et al.* 2006, 2014) – although whether the latter is due to shipping activity associated with the windfarms or to the turbines themselves has not been tested for. These tendencies have led to the Red-throated Diver being classed as among the most sensitive of all seabird species to displacement and disturbance associated with human offshore activities (Garthe & Hüppop 2004; Furness *et al.* 2013). It is thus interesting that although there has been an increase in some development pressure in the Thames Estuary over the last decade, including the building of large windfarms with their associated boat traffic, this does not appear to have caused the number of Red-throated Divers being detected in the Outer Thames Estuary SPA to decline. It is important to note, however, that previous estimates of diver numbers in the SPA may be significant underestimates, since they were derived from visual aerial surveys rather than surveys using digital photography. This lack of comparability makes it difficult to determine with certainty whether there has been any change in diver numbers. Furthermore, displacement effects may cause a redistribution of birds within a wider area rather than an overall decline in numbers. It is evident from fig. 3 that there is pronounced variation in the density of divers across the SPA, especially in the southern area. It is yet to be established what factors are most significant in explaining this spatial heterogeneity. Pockets of lower density could be due to spatial variation in a variety of environmental factors, such as water depth, seabed type and prey availability, as well as anthropogenic factors (which include general shipping activity, aggregate dredging activity and the proximity of offshore windfarms). Further analyses of the dataset are required to reveal the degree to which, and the spatial scale over which, the density of divers is reduced in and around areas of human activity once the impact of 'natural' factors has been accounted for.

Future work

Further winter surveys in the Outer Thames Estuary would provide valuable extra data on the temporal and spatial changes in the numbers and distributions of Red-throated Divers. Those surveys would also make it possible to determine whether developments and any other environmental changes affecting the wider Thames area are influencing the size and distribution of this important concentration of Red-throated Divers.

In due course the results reported here should help to update the Red-throated Diver population estimates for Great Britain and the UK (Musgrove *et al.* 2013).

References

APEM Ltd. 2011. Red-throated Divers and offshore wind farms in the Outer Thames: historic data review. APEM Scientific Report 411134.

— 2013. Aerial bird surveys in the Outer Thames Estuary SPA. APEM scientific unpublished report for Natural England.

Balmer, D. E., Gillings, S., Caffrey, B. J., Swann, R. L., Downie, I. S., & Fuller, R. J. 2013. *Bird Atlas 2007–11: the breeding and wintering birds of Britain and Ireland.* BTO Books, Thetford.

Bohlin, T. 1990. Estimation of population parameters using electric fishing: aspects of the sampling design with emphasis on salmonids in streams. In: Cowx, I. G., & Lamarque, P. (eds.), *Fishing with Electricity*, pp. 156–173. Fishing News Books, Oxford.

Borchers, D. L., Buckland, S. T., & Zucchini, W. 2002. *Estimating Animal Abundance: closed populations.* Springer, London.

Camphuysen, C. J., Fox, A. D., Leopold, M. F., & Petersen, I. K. 2004. Towards standardised seabirds at sea census techniques in connection with environmental impact assessments for offshore wind farms in the UK. Comparison of ship and aerial sampling methods for marine birds, and their applicability to offshore wind farm assessments. Unpublished report to COWRIE.

DTI (Department of Trade & Industry). 2006. Aerial surveys of waterbirds in strategic windfarm areas: 2004/05 final report. DTI, London.
Efron, B., & Tibshirani, R. J. 1993. *An Introduction to the Bootstrap*. Chapman & Hall, London.
Elliott, J. M. 1977. *Some Methods for the Statistical Analysis of Samples of Benthic Invertebrates.* Freshwater Biological Association, Scientific Publication No. 25, Ambleside.
Furness, R. W., Wade, H. M., & Masden, E. A. 2013. Assessing vulnerability of marine bird populations to offshore windfarms. *J. Environmental Management* 119: 56–66.
Garthe, S., & Hüppop, O. 2004. Scaling possible adverse effects of marine wind farms on seabirds: developing and applying a vulnerability index. *J. Appl. Ecol.* 41: 724–734.
JNCC (Joint Nature Conservation Committee). 2010. Red-throated Divers wintering around Great Britain. **http://jncc.defra.gov.uk/pdf/SAS_Wintering_RTD_around_GB_presentation_Copenhagen_Nov_2010.pdf**
— 2011. Outer Thames Estuary. SPA Natura 2000 standard data form for Special Protection Areas (SPA) for sites eligible for identification as Sites of Community Importance (SCI) and for Special Areas of Conservation (SAC). **http://jncc.defra.gov.uk/pdf/SPA/UK9020309.pdf**
Musgrove, A., Aebischer, N., Eaton, M., Hearn, R., Newson, S., Noble, D., Parsons, M., Risely, K., & Stroud, D. 2013. Population estimates of birds in Great Britain and the United Kingdom. *Brit. Birds* 106: 64–100.
NE & JNCC (Natural England & Joint Nature Conservation Committee). 2010. Departmental Brief: Outer Thames Estuary Special Protection Area. Brief version 2.0, 10 May 2010. **http://publications.naturalengland.org.uk/publication/3233957** (Accessed 22 November 2014).
O'Brien, S. H., Wilson, L. J., Webb, A., & Cranswick, P. A. 2008. Revised estimate of wintering Red-throated Divers *Gavia stellata* in Great Britain. *Bird Study* 55: 152–160.
Petersen, I. K., Nielsen, R. D., & Mackenzie, M. L. 2014. Post construction evaluation of bird abundances and distributions in the Horns Rev 2 offshore windfarm area, 2011 and 2012. Report commissioned by DONG Energy. Aarhus University, Danish Centre for Environment and Energy.
—, Christensen, T. K., Kahlert, J., Desholm, M., & Fox, A. D. 2006. Final results of bird studies at the offshore windfarms at Nysted and Horns Rev, Denmark. NERI report to DONG energy and Vattenfall A/S.
Schwemmer, P., Mendel, B., Sonntag, N., Dierschke, V., & Garthe, S. 2011. Effects of ship traffic on seabirds in offshore waters: implications for marine conservation and spatial planning. *Ecological Applications* 21: 1851–1860.
Skov, H., & Prins, E. 2001. Impact of estuarine fronts on the dispersal of piscivorous birds in the German Bight. *Marine Ecology Progress Series* 214: 279–287.
Stroud, D. A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., Lewis, I., McLean, I., Baker, H., & Whitehead, S. 2001. *The UK SPA Network: its scope and content.* Vols. 1–3. JNCC, Peterborough.
Webb, A., Dean, B. J., O'Brien, S. H., Söhle, I., McSorley, C. A., Reid, J. B., Cranswick, P. A., Smith, L. E., & Hall, C. 2009. *The Numbers of Inshore Waterbirds Using the Greater Thames During the Non-breeding Season: an assessment of the area's potential for qualification as a marine SPA.* JNCC Report 374, Peterborough.
Wernham, C. V., Toms, M. P., Marchant, J. H., Clark, J. A., Siriwardena, G. M., & Baillie, S. R. (eds.) 2002. *The Migration Atlas: movements of the birds of Britain and Ireland.* Poyser, London.

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Appendix 1. Seabirds and waterbirds recorded during the Outer Thames Estuary SPA aerial survey.

Digital aerial surveys conducted over the Outer Thames Estuary SPA captured images of various species of seabird and marine mammal. High-resolution images at a 3 cm GSD can identify most species and often separate age categories for species such as the Northern Gannet *Morus bassanus* and groups such as gulls.

The species most often recorded during surveys of the Outer Thames were large gulls, including Great Black-backed *Larus marinus*, Lesser Black-backed *L. fuscus* and Herring Gull *L. argentatus*. Auks including Common Guillemot *Uria aalge*, Razorbill *Alca torda*, Puffin *Fratercula arctica* and Little Auk *Alle alle*, and small gull species including Kittiwake *Rissa tridactyla*, Common Gull *L. canus* and Black-headed Gull *Chroicocephalus ridibundus* were also identified. Less commonly recorded species included various species of wildfowl, grebes, Fulmar *Fulmarus glacialis*, Northern Gannet, Great Cormorant *Phalacrocorax carbo*, Shag *P. aristotelis*, waders and skuas.

At 3 cm GSD all large gull species and Kittiwakes can be identified in imagery with a greater than 90% positive identification rate throughout the year, while other small gull species can be identified with a greater than 80% identification rate. Percentage identification rates increase with reduced pixel ground resolution. At 2 cm GSD more than 99% of large gulls are identified to species.

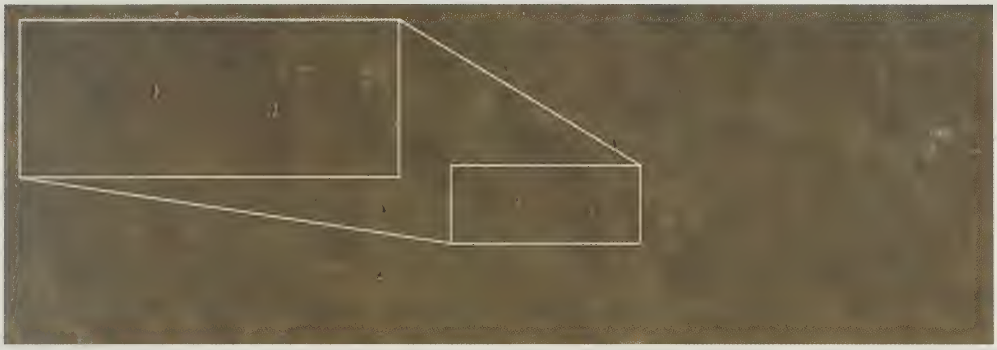


Fig. 4. Digital aerial survey photograph of Red-throated Divers *Gavia stellata* sitting on the sea surface with two divers enlarged in top left-hand corner. This is a 3 cm GSD image.

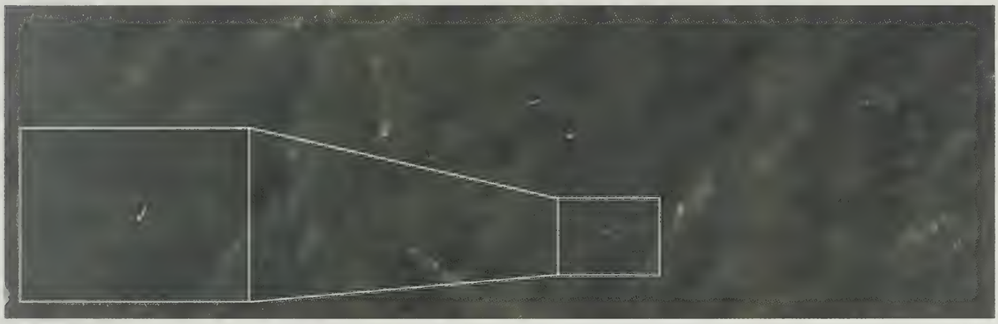


Fig. 5. Digital aerial survey photograph of Red-throated Divers *Gavia stellata* sitting on the sea surface with one diver enlarged in bottom left-hand corner. This is a 3 cm GSD image.

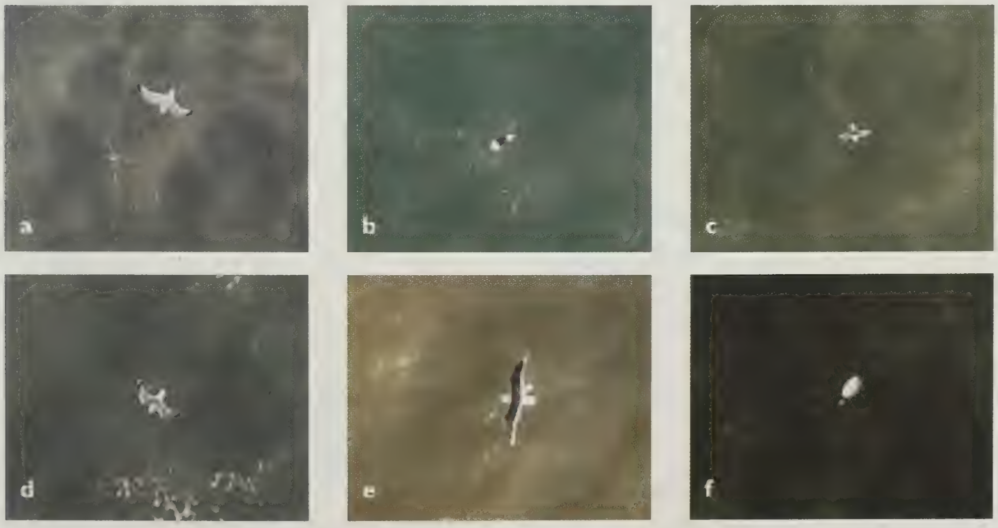


Fig. 6. Examples of 3 cm GSD images of other species recorded during surveys of the Outer Thames Estuary SPA. It should be noted that the actual image quality is superior to these compressed and cropped examples. The species are: a) Herring Gull *Larus argentatus*; b) (sitting) Great Black-backed Gull *L. marinus*; c) Kittiwake *Rissa tridactyla*; d) Common Gull *L. canus*; e) Great Black-backed Gull; and f) (sitting) Northern Gannet *Morus bassanus*.

Plumage variability and field identification of Manx, Yelkouan and Balearic Shearwaters

Marcel Gil-Velasco, Guillermo Rodríguez,
Stephen Menzie and José Manuel Arcos

Abstract Three medium-sized *Puffinus* shearwaters breed in Europe: Manx *P. puffinus*, Yelkouan *P. yelkouan* and Balearic Shearwaters *P. mauretanicus*. These three, considered a single, polytypic species until relatively recently, can be difficult to identify in some situations, notably in a vagrant context. This paper presents a detailed review of the plumage variability of the three taxa; combined with an understanding of structural differences and flight characteristics, this should provide a sound basis for the identification of problematic individuals.

Four species of *Puffinus* shearwater breed in Europe: the closely related Manx *P. puffinus*, Yelkouan *P. yelkouan* and Balearic Shearwaters *P. mauretanicus*, together with the smaller Macaronesian Shearwater *P. baroli*, which is not considered further in this paper. Until relatively recently, the three taxa in the *puffinus/yelkouan/mauretanicus* complex were treated as a single polytypic species. The complex was initially split two ways, into Manx Shearwater (monotypic) and 'Mediterranean Shearwater', the latter with subspecies *yelkouan* and *mauretanicus* (see Bourne *et al.* 1988 and Wink *et al.* 1993). 'Mediterranean Shearwater' was then split further, into Yelkouan Shearwater (formerly known as Levantine Shearwater in some quarters) and Balearic Shearwater, both monotypic (e.g. Heidrich *et al.* 1998). This split was not universally accepted, initially at least (e.g. Yésou & Paterson 1999), although subsequent genetic analysis has presented robust evidence for their separation as different species (Heidrich *et al.* 2000) and both taxa were raised to species rank by the AERC in 2002 (Sangster *et al.* 2002).

The Manx Shearwater is an Atlantic species, with just a few old records from the Mediterranean coasts of France (Blondel & Isenmann 1981), Italy (Baccetti *et al.* 2014) and Malta (Borg *et al.* 1999). All the Mediterranean records involve tideline corpses; an accepted field record is still lacking. The Balearic Shearwater, breeding only in the Mediterranean, is a regular non-breeding visitor to the coastal waters of northwest Europe, and has shown a northward shift in non-breeding dispersal patterns in recent years (Wynn & Yésou 2007; fig. 1). The breeding range of the Yelkouan Shearwater is also restricted to the Mediterranean (fig. 1). However, in contrast to the Balearic Shearwater, it is undeniably rare in Atlantic waters with, for example, no accepted records in Britain or Ireland at the time of writing (Irish Rare Birds Committee 2011; Harrop *et al.* 2013). However, a true assessment of its status in the Atlantic continues to be clouded by identification problems.

Identification of the *puffinus/yelkouan/mauretanicus* complex has been dealt with previously (e.g. Yésou *et al.* 1990, Gutiérrez 2004, Garner 2008), yet past assessments of the complex have failed to deal with some of the issues that still cause problems. For example, a full account of plumage variation within Balearic Shearwater – especially at the pale end of the scale – has yet to be addressed, while the limit between certain Manx and Yelkouan Shearwaters remains unclear. Militao *et al.* (2014) studied in detail the separation of Balearic and Yelkouan Shearwater using plumage coloration, bill morphology, genetic studies, and isotopic analyses; they found consistent differences in all aspects – although the majority of the features used in their assessment cannot be used for field identification.

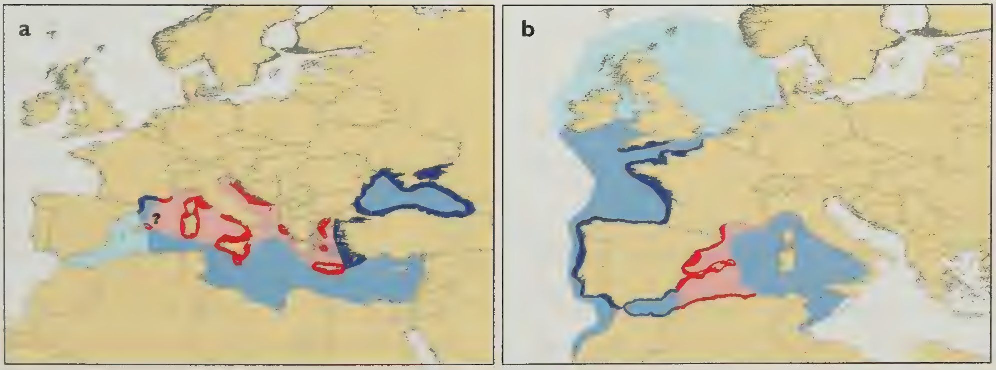
Here, we revisit the identification problems that the complex presents, with the aim of comprehensively addressing the separation of Yelkouan from the other two species. We present an overview of population status, movements and moult, together with a general description of plumage variability, before focusing on the identification of difficult individuals, analysing the key features for separating Yelkouan from Manx and then Yelkouan from Balearic. We cover the problem of so-called 'Menorcan shearwaters' and the phenotypic particularities of Manx Shearwaters from the Canary Islands. We conclude with guidelines for identification from land, with the emphasis on detecting a vagrant Yelkouan in Atlantic waters.

Methods

This paper is based on the authors' experience of the three taxa, from dozens of pelagic trips and extensive seawatching, plus examination of photographs and museum skins. Field experience was gained largely in four areas:

- The Bosphorus (Turkey), where many thousands of Yelkouan Shearwaters move between the Mediterranean and the Black Sea. Current knowledge suggests that Balearic Shearwaters do not reach the Bosphorus, and we have not detected any Balearic candidates during the study period. Accordingly, to determine the phenotypic variation in Yelkouan Shearwater, we have used birds from this area only.
- Catalonia (Mediterranean coast of Spain), where Yelkouan and Balearic Shearwaters occur side by side.
- Galicia and Cantabria (Atlantic coast of Spain), where Manx Shearwater is a very common passage migrant during September and October and Balearic Shearwater is common during summer and autumn.
- The Gulf of Cadiz (southern Spain), where a few individuals of both Yelkouan and Manx can be seen together with numerous Balearic Shearwaters in late autumn.

In addition to field observations, an extensive collection of photographs was compiled to quantify the variability of key identification features (notably the pattern of the underwing and the undertail area) and address the frequency of particular traits (such as foot projection in Manx Shearwater). This facilitated a comprehensive description of plumage features important for identification, and determination



Marcel Gil, adapted from del Hoyo et al. (2014)

Marcel Gil, adapted from Arcos (2011)

Fig. 1. Approximate distribution of Yelkouan (1a) and Balearic Shearwaters (1b) during the breeding (red) and non-breeding (blue) season. Darker colours show areas where most sightings can be expected during a given season. A small number of Yelkouan Shearwaters also breed on the Tunisian and Algerian coasts.

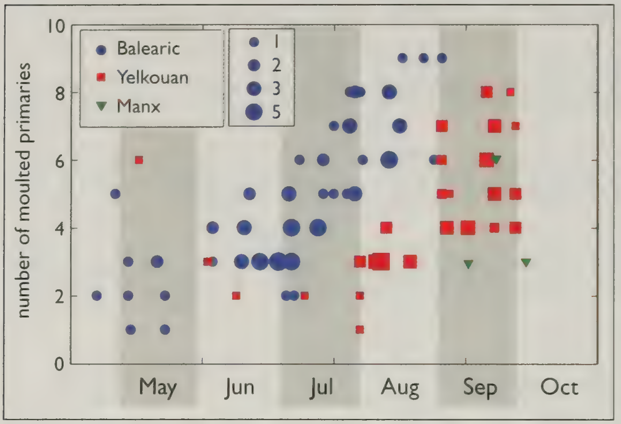


Fig. 2. Differences in the timing of moult in Manx *Puffinus puffinus*, Yelkouan *P. yelkouan* and Balearic Shearwaters *P. mauretanicus* in European waters. Size of symbol shows number of individuals recorded.

of limits in the variability of each feature. In total, photographs of 234 individual Yelkouan Shearwaters were examined (141 from the Bosphorus and an additional 93 from Mediterranean Spain), 273 Balearic Shearwaters (from Atlantic and Mediterranean coasts of Spain), and 136 Manx (from Britain & Ireland and Atlantic Spain). From these images, the moult schedule of each species was also studied (fig. 2).

Finally, skins of all three species were examined and measured at the Natural History Museum in Tring, the World Museum in Liverpool and the Natural History Museum of Denmark.

Manx Shearwater

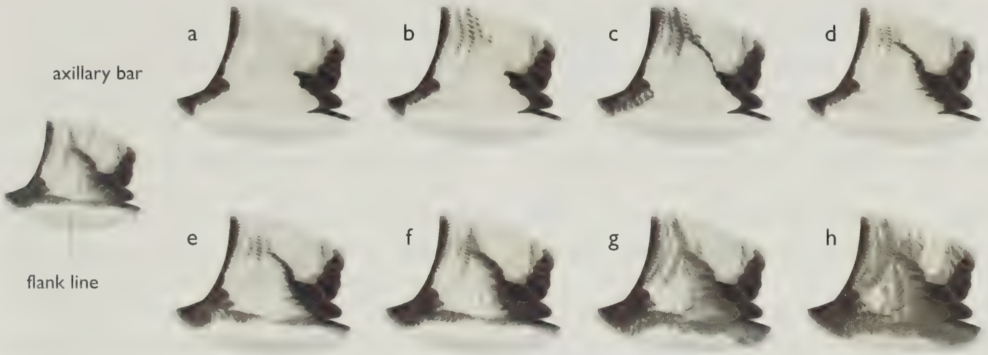
Status, distribution and movements

Manx Shearwater is a migrant breeder to Britain & Ireland, the Faroe Islands, Brittany (France) and Iceland, with additional colonies in Madeira, the Canary Islands, Canada's maritime provinces and northeast USA. The breeding season is from May to early August, and the European breeding population is estimated to be up to 340,000 pairs (Hagemeijer & Blair 1997), including an estimated 299,700 pairs in Britain & Ireland (Mitchell *et al.* 2004). European breeders migrate south in early autumn, passing along the African coast as far as Senegal, before crossing the Atlantic to the coasts of southeast Brazil and Argentina, where they take advantage of the rich feeding grounds from the Río de la Plata mouth southwards. In late winter and early spring they move north, following the South American coast. On arrival at the most easterly point of the Brazilian coast, they head for Europe in a broad arc to reach their breeding grounds by early spring (Guilford *et al.* 2009).

Manx Shearwaters were first recorded breeding on the Atlantic coast of North America in 1976, and now breed in numbers from Newfoundland south to Maine and Massachusetts (Howell 2012). The population in North America is reported to be stable or perhaps decreasing, and a significant proportion of birds present in American waters appear to be non-breeders (Robertson 2002; Fraser *et al.* 2013). Birds were detected on the Pacific coast of North America in the mid 1970s, with an increase in the mid 1990s and year-round sightings by 2000 (Mlodinow 2004). It is possible that breeding occurs, with a calling bird found in British Columbia, Canada, in July 1994 (Mlodinow 2005).

Moult

The Manx Shearwater is a long-distance migrant and this determines its moult strategy. Moult starts after the autumn migration, when birds are on the wintering grounds in the southern hemisphere; little is known about the moult sequence, though it is assumed to be essentially similar to that of other Procellariiformes. Moult starts with the innermost primaries and, as in other seabirds, shearwaters typically drop the two or three innermost primaries at the same time, with the rest moulted subsequently, one by one. Once more than half the primaries have been replaced, a rapid moult of the secondaries occurs (Pyle 2008; Howell 2012). Flight-feather moult is typically completed in January–February, when head and body feathers are also moulted. Lee (1995) reported that females moult earlier than males. Individuals that start moulting the remiges during autumn migration are probably non-breeders. This is rare in Europe (<1% in northern Spain in September; pers. obs.), but in other areas, such as off North Carolina



Martí Franch

Fig. 3. The underwing pattern of Manx, Yelkouan and Balearic Shearwaters. A clean underwing (a) is the most common pattern in Manx, but about a third of birds show diffuse dark marks around the 'wrist' area (b). Rarely (<6%), Manx may show a dark diagonal axillary bar (c). This differs from the typical pattern of Yelkouan (d, e) in being broadest towards the 'wrist' (narrowest towards the wrist in Yelkouan). About 20% of Yelkouans lack both a diagonal axillary bar and flank line (thus are similar to (a)) while c. 10% lack a flank line but show a diagonal axillary bar (d). More commonly (c. 60%), birds show both a diagonal axillary bar and a fine line along the upper flank (e), the latter sometimes broken in the centre. In c. 5% of Yelkouan the flank line is thicker, though still with some narrowing at the centre (f); typically these individuals also show a relatively thick diagonal bar and a dirtier-looking underwing. A few Balearics show an underwing similar to (f) although pale birds (3%) typically show a uniformly thick flank line (g). Most Balearics show a dirty underwing with a broad diagonal bar (h).

Table 1. Biometrics of Manx, Yelkouan and Balearic Shearwaters; published data for 'Menorcan shearwaters' are also included. If available, the range is shown, with the mean in parentheses and sample size in italics. Data from: [1] Onley & Scofield (2007); [2] Ruiz & Martí (2004); [3] Howell (2012); [4] Brooke (2010); [5] the authors' unpublished data (from specimens); and [6] SEO/BirdLife–IRBI–ASCI unpublished data. Similarities between measures from [4] and [5] may indicate a partial overlap within the skin samples studied.

	Manx Shearwater	Yelkouan Shearwater	Balearic Shearwater	'Menorcan shearwater'
Weight (g)	350–575 [1]	349–416 [1]	472–565 [1]	
			430–640(540) *37* [6]	
Total length (mm)	300–305 [1]	300–360 [1]	340–380 [1]	
	310–350 [3]			
	320–390(345) *19* [5]	310–380(340) *16* [5]	350–410(375) *12* [5]	
Wing (mm)			235–265(251) *115* [2]	231–251(242) *30* [2]
	221–243(235) *28* [4]	220–243(232) *18* [4]	234–254(246) *17* [4]	
	228–244(236) *17* [5]		230–254(242) *11* [5]	
		198–244(230) *14* [5]		
Tail (mm)	(75) [1]	(73) [1]	(72) [1]	
			65–80(75) *115* [2]	67–78(74) *30* [2]
	68–79 [3]			
	68–70(73) *28* [4]	63–74(70) *18* [4]	68–76(73) *17* [4]	
	62–76(71) *19* [5]	61–72(68) *16* [5]	58–74(67) *12* [5]	
Tarsus (mm)	43–49(45) *28* [4]	43–48(45) *18* [4]	46–50(48) *17* [4]	
	43–60(48) *18* [5]	45–53(49) *16* [5]	45–51(48) *12* [5]	
Bill length (mm)			31–45(38) *263* [2]	35–39(37) *30* [2]
	31–38 [3]			
	32–37(35) *28* [4]	34–39(36) *18* [4]	35–43(38.5) *17* [4]	
	33–37(34) *19* [5]	32–38(35) *16* [5]	35–42(39) *12* [5]	
Bill depth (mm)			6.9–9.9(8.6) *223* [2]	6.9–8.5(7.8) *29* [2]
	7.2–9.6(8.5) *19* [5]	7.6–9.1(8.4) *16* [5]	7.1–10.0(8.7) *12* [5]	

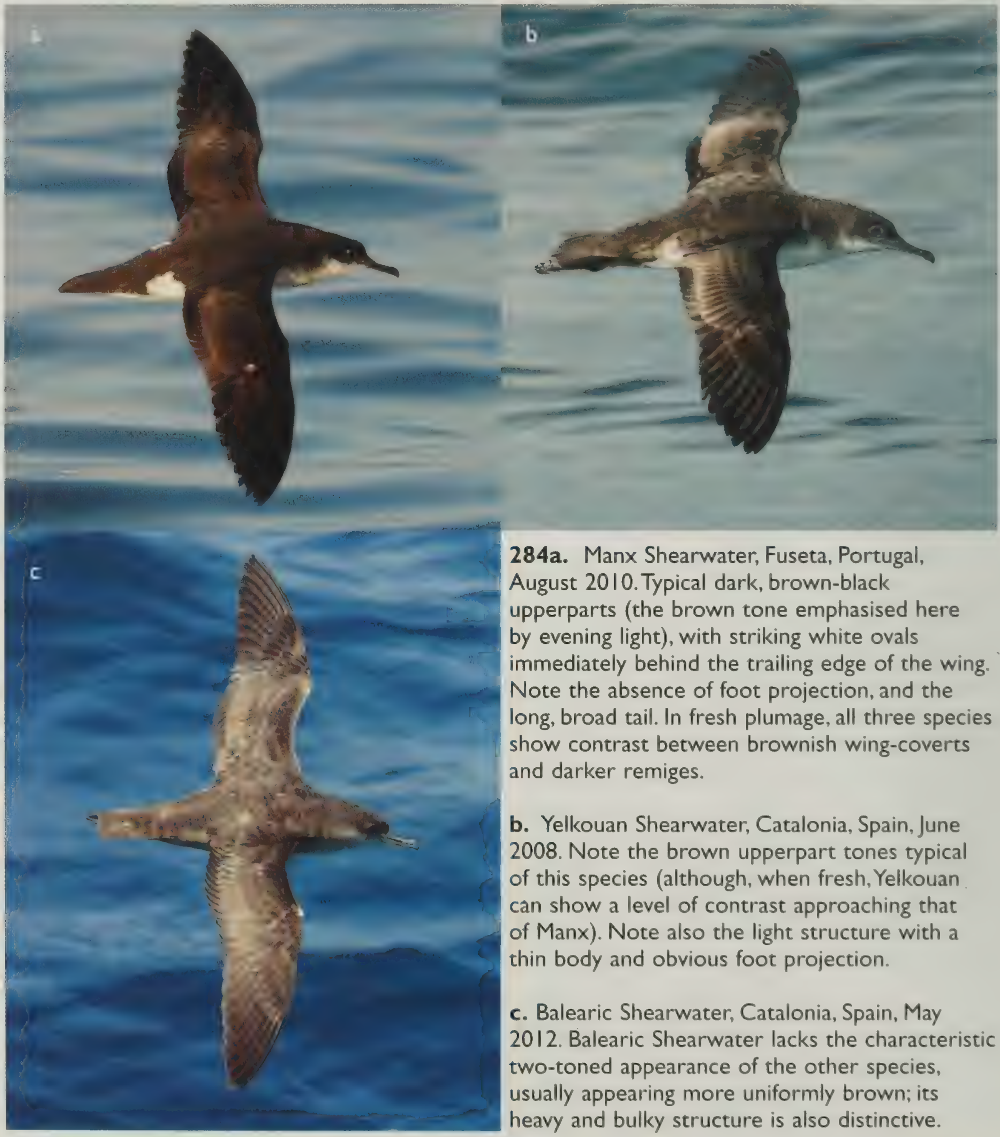
(USA) or the Canary Islands, the proportion of moulting birds during late summer is much higher, suggesting that immatures or non-breeders concentrate in these areas. Birds return to the colony in their third or fourth year of life, and sexual maturity is typically reached at five years (Harris 1966), so the total number of immature/non-breeding birds in the population may be considerable.

Size, structure and flight action

Manx is smaller and slimmer than Balearic Shearwater, but larger and bulkier than Yelkouan (see table 1, although there is significant overlap in all measurements). Manx is a powerful shearwater, with long and pointed wings, a deep breast, strong muscular back and thick neck. The head profile looks angular, with a particularly prominent forehead. Typically, it has a square-shaped tail with no foot projection. The flight style is often *Pterodroma*-like, with high arcs over the water surface, although this is perhaps partly a function of the rough sea areas they inhabit, and Balearic can show a similar flight in comparable conditions. In direct flight and on migration, Manx flies with deep wingbeats, alternating with longer glides than the other two species.

Plumage

In the field, Manx Shearwater is striking even



Rasmus Nielssen

José Manuel Arcos

José Manuel Arcos

284a. Manx Shearwater, Fuseta, Portugal, August 2010. Typical dark, brown-black upperparts (the brown tone emphasised here by evening light), with striking white ovals immediately behind the trailing edge of the wing. Note the absence of foot projection, and the long, broad tail. In fresh plumage, all three species show contrast between brownish wing-coverts and darker remiges.

b. Yelkouan Shearwater, Catalonia, Spain, June 2008. Note the brown upperpart tones typical of this species (although, when fresh, Yelkouan can show a level of contrast approaching that of Manx). Note also the light structure with a thin body and obvious foot projection.

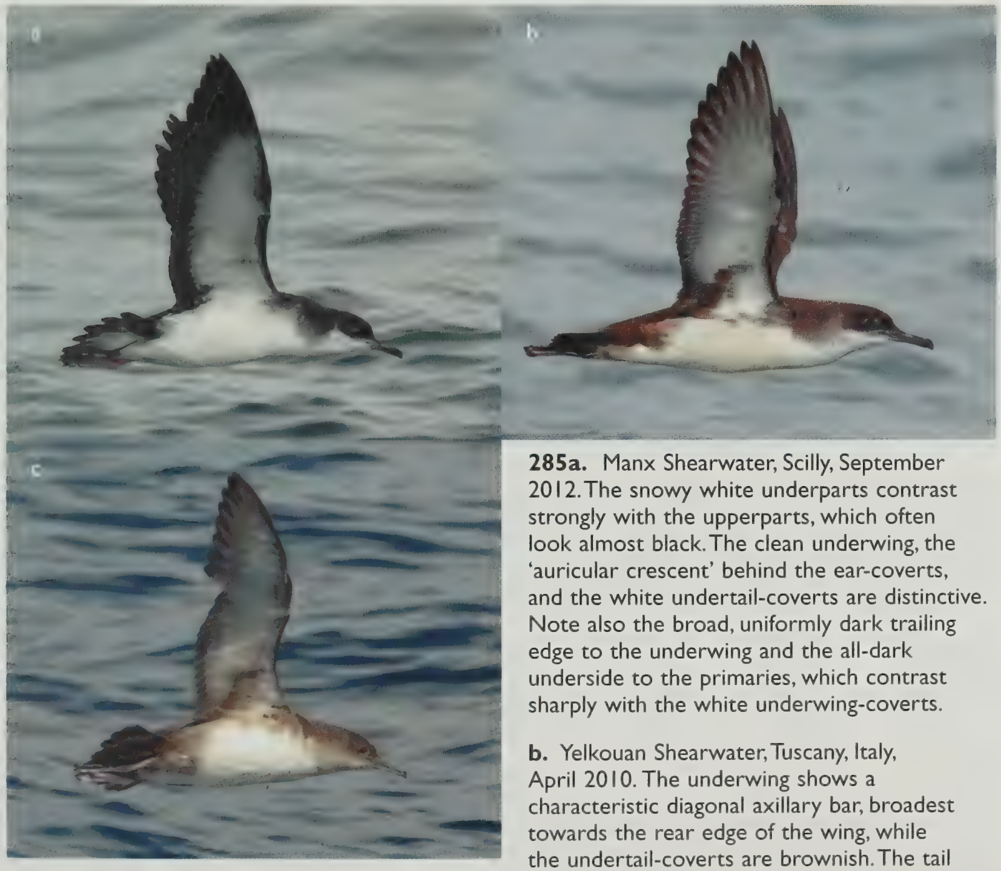
c. Balearic Shearwater, Catalonia, Spain, May 2012. Balearic Shearwater lacks the characteristic two-toned appearance of the other species, usually appearing more uniformly brown; its heavy and bulky structure is also distinctive.

at long range, owing to the contrast of very dark upperparts against snowy-white underparts. The ground colour of the upperparts is nearly black, much darker than that of Balearic and Yelkouan, which are more brown-tinged. The underparts are largely white, apart from the black flight feathers, which create a relatively wide, dark trailing edge. White extends from the flanks partially onto the rump behind the wings, resulting in two striking oval white spots, eye-catching from above even at distance. The face shows a strong contrast between the dark upper part and the clean white throat; a well-marked white 'auricular crescent' is typically present just behind the facial mask. Manx Shearwater displays limited plumage variability, mainly in the underwing pattern: most (58% of birds studied in photographs) show completely white underwing-coverts and axillaries (fig. 3a). In our study, 36% showed some diffuse spots to the wrist area caused by dark tips to the underwing-coverts (fig. 3b), while a small proportion (6%) showed a complete diagonal bar, from the rear wing-base to the wrist (fig. 3c). The undertail-coverts look completely white, although close views show that the last line of coverts is actually black (fig. 4).

Yelkouan Shearwater

Status, distribution and movements

Yelkouan Shearwater breeds on islets around the Mediterranean, from southern France and the coasts of Algeria and Tunisia east to



Joe Pender

Daniele Occiato

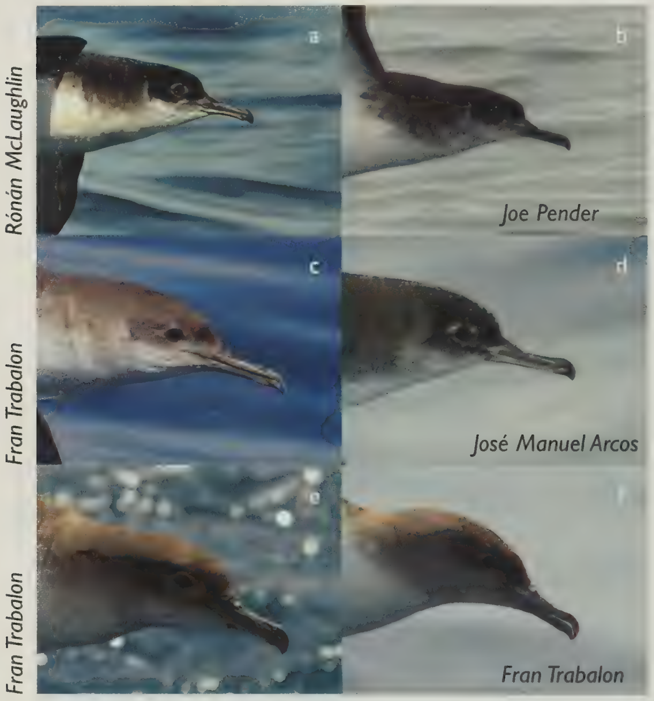
Fran Trabalon

285a. Manx Shearwater, Scilly, September 2012. The snowy white underparts contrast strongly with the upperparts, which often look almost black. The clean underwing, the 'auricular crescent' behind the ear-coverts, and the white undertail-coverts are distinctive. Note also the broad, uniformly dark trailing edge to the underwing and the all-dark underside to the primaries, which contrast sharply with the white underwing-coverts.

b. Yelkouan Shearwater, Tuscany, Italy, April 2010. The underwing shows a characteristic diagonal axillary bar, broadest towards the rear edge of the wing, while the undertail-coverts are brownish. The tail is short, there is a noticeable foot projection, while the rear end is rather fine and pointed. Compare the diffuse pale base to the primaries, which lack sharp contrast with the underwing-coverts in Yelkouan, with the pattern of Manx.

c. Balearic Shearwater, Catalonia, Spain, May 2013. The combination of heavy body, smooth head profile and large bill gives the species a characteristic jizz. Note, however, that all these features are variable, with males bulkier and larger-billed than females.

the Aegean, with the largest colonies in Greece (Cyclades, Dodecanese Islands, northeast Aegean) and Italy (islets off Sardinia and Tuscany) (Bourgeois 2012; Péron *et al.* 2013). There is uncertainty over its breeding status in Turkey, and breeding is suspected but not confirmed in several places in the Black Sea. It is listed as Vulnerable (BirdLife International 2015), with a population of 15,337–30,519 pairs, but there is no reliable information about population trends. Breeding extends from mid March to mid July. After breeding, birds from the eastern Mediterranean generally move to the Black Sea to moult, with tens of thousands entering through the Bosphorus. Adult birds from a colony in Malta dispersed towards the Bosphorus while juveniles remained in the central Mediterranean (Raine *et al.* 2011, 2012), suggesting that these movements may be a response to the low productivity of parts of the Mediterranean in summer, insufficient for the requirements of moulting adults. Western breeders gather in smaller numbers along the coasts of northeast Spain and North Africa (Péron *et al.* 2013). Large concentrations in some areas, such as the Catalan coast, suggest that this pattern may vary from year to year, depending on food resources.



Rónán McLaughlin

Joe Pender

Fran Trabalon

José Manuel Arcos

Fran Trabalon

Fran Trabalon

286. Manx Shearwater (**a** Co. Waterford, August 2011; **b** Scilly, August 2012) is bulky and bull-necked, and the forehead is angular at both the bill and the crown. There is a sharp contrast between the black of the crown and ear-coverts and the white chin and throat. The bill is long, straight, and parallel-sided. Yelkouan Shearwater (**c** Catalonia, Spain, May 2013; **d** Catalonia, Spain, June 2008) shows a relatively smaller-proportioned head and thinner neck. The forehead is steep but less angular/pronounced than in Manx. The bill is thin with a moderately curved culmen. Balearic Shearwater (**e** and **f**, Catalonia, Spain, May 2013) shows a rounded head profile, with little distinction between the crown, forehead and bill base. The bill is generally thick, especially at the base, with a distinct nail. Some birds with thinner bills (probably females) can show a more prominent angle between the forehead and the bill.

Yelkouan Shearwater is a scarce but probably regular visitor to the Gulf of Cadiz (west of the Strait of Gibraltar), with four documented records: three in November 2011 (pers. obs.) and one in October 2013 (Cárlos Gutiérrez Expósito pers. comm.). The species is seen every year during the migration counts carried out at the Strait of Gibraltar (Programa Migres), with observations peaking in July, although views are distant and these records should perhaps be considered tentative. The birds studied by us at Cadiz appeared as classic Yelkouan (though see discussion on 'Menorcan shearwater' below), which suggests that Yelkouan Shearwater is most likely to occur in the Atlantic in mid/late summer and autumn. However, non-breeders, which may not necessarily return to the Mediterranean in the same year as they leave it, could potentially be encountered at any time of year.

In the 1970s, large concentrations of Yelkouan Shearwaters could be found in Algeciras Bay (east of Gibraltar) from late June, peaking in September (Bernis & Tellería 1981). No such gatherings have been reported recently, perhaps due to changes in feeding or moulting patterns in the western Mediterranean.

The status of Yelkouan Shearwater farther north in the Atlantic is chequered. Curtis *et al.* (1985)

stated that 'there seems to be no reason to doubt that individuals of the race *yelkouan* reach British waters'. This was based on the claim by Flamborough Ornithological Group that the incidence of *yelkouan* was at the rate of about one to every nine *mauretanicus* seen since 1976. It was formerly considered to be regular off the northern coasts of Spain (Gutiérrez 2004), although the consensus now among the Spanish seawatching community is that these records involved very pale Balearics. Despite modern records of Yelkouan from the Gulf of Cadiz – roughly 100 km beyond the Strait of Gibraltar – none has been detected farther north in Galician waters, despite much observer effort.

Both Cade (1983) and McCartney (1986) gave brief descriptions of claimed *yelkouan* in British waters, stating that the birds in question showed paler brown upperparts than *mauretanicus*. Yet neither record was accepted and both birds are perhaps most likely to have been pale *mauretanicus*. Between 2003 and 2013 there were a number of claims of Yelkouan Shearwaters in the northeast Atlantic, including birds off France (at least three), Ireland (two), and Britain (approximately 43 claims of 47 individuals, data from www.birdguides.com; see for example Langman & Darlaston 2009).

Moult

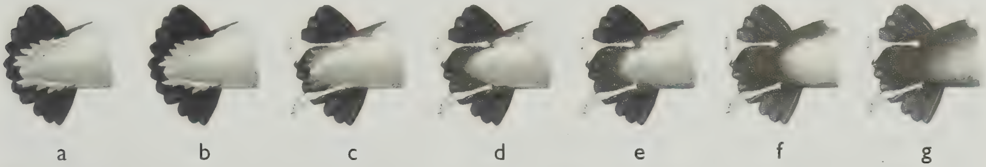
In contrast to Manx Shearwater, Yelkouan is a short-distance migrant that starts moult immediately after breeding, in mid July (Bourgeois & Dromzée 2014). The sequence is similar to that described for Manx, with moult of remiges typically completed between September and November. The timing is roughly one month later than in Balearic Shearwater (fig. 2), reflecting the difference in time of breeding (Ruiz & Martí 2004). Off northeast Spain, where large concentrations occur even during the breeding period, birds in active moult during May are not uncommon and presumably involve non-breeders.

Size, structure and flight action

Yelkouan is a graceful shearwater, lightly built in comparison with Manx and Balearic. Typically, its body looks like a thin cigar, lacking the powerful breast of Manx and the heavy belly of Balearic. This often leads to the impression that it is difficult to place the centre of mass, compared with the other two in which it is usually obvious. It is also comparatively short-winged, emphasising its 'small shearwater' appearance. The tail is relatively short, typically with an obvious foot projection, resulting in an attenuated rear-end that sharpens the overall profile of the bird. The head profile shows a steep forehead, in contrast to the smoother profile of Balearic. Yelkouan Shearwater's flight is straight with a series of frantic wingbeats interspersed with brief glides, generally close to the water surface.

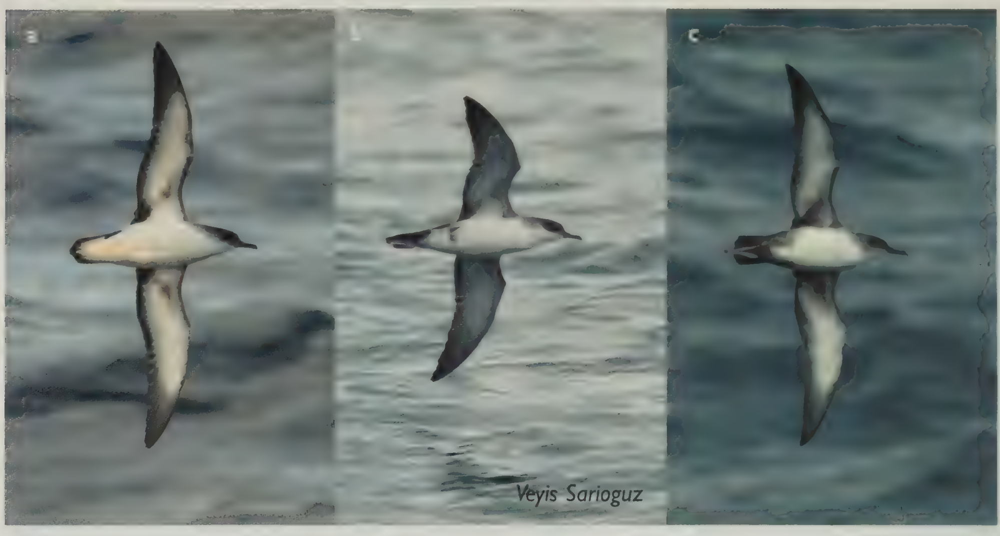
Plumage

Overall, the plumage of Yelkouan is similar to Manx, in that it looks markedly bicoloured. The upperparts are, however, paler and browner than in Manx, especially in spring and summer as it becomes worn and bleached. The underparts, other than the



Martí Franch

Fig. 4. The undertail pattern of Manx *Puffinus puffinus*, Yelkouan *P. yelkouan* and Balearic Shearwaters *P. mauretanicus*. Manx Shearwater typically shows a clean undertail, with dark restricted to the outer web of the outer row of undertail-coverts (a). Some fine dark markings may occasionally be found on the inner web of these feathers; one individual (b) was seen with solid dark markings on the inner webs – see text. The palest Yelkouan Shearwaters (c. 20%) can appear similar (c), though the dark/light contrast is less marked. More than 50% of Yelkouans show completely brown undertail-coverts, although the dark does not extend to the belly (d). In around 20% of Yelkouans, dark extends onto the sides of the lower belly (e); compare that with a pale Balearic Shearwater (f), in which brown usually extends right across the lower belly. Typical Balearics show a completely brown lower belly, which merges gradually into the pale central belly (g).



Rónán McLaughlin

Veyis Sarioguz

Marcel Gil

287a. Long wings give Manx Shearwaters an elegant, aerodynamic silhouette when gliding. Note the rather square-ended tail; Ireland, August 2009.

b. In Yelkouan Shearwater, the body is generally slimmer than in the other taxa, although there is plenty of variability in terms of structure. Note the rather tapering tail; Istanbul, Turkey, April 2009.

c. The characteristic bulky, pot-bellied structure of Balearic Shearwater is evident here; Galicia, Spain, November 2011.

flight feathers, are whitish, but not the pure snowy white of Manx. Yelkouan's dark trailing edge to the wing is less contrasting than in Manx, since the feather bases (especially the primaries) are paler. Yelkouan displays a subtle contrast between the facial mask and the lighter neck, but the characteristic white auricular crescent of Manx is seldom present (and, if so, only in worn plumage). In Yelkouan, white from the flanks only just extends onto the back, forming a small and generally dirty pale patch just behind the wings.

Plumage variability in Yelkouan Shearwater affects mainly the pattern of the underwing and undertail. The underwing-coverts and axillaries are completely clean in some birds (fig. 3a), c. 20% of our sample, while 11% showed a fine diagonal bar across the wing-coverts from the axillaries (fig. 3d). The commonest phenotype (c. 60% of birds) showed both a diagonal bar and a fine brown line along the flank, delineating the wing base (fig. 3e). In around 5% of individuals, the diagonal bar is thick and the underwing dirtier-looking (fig. 3f). Some can show a diagonal bar but no flank line, yet we found none with a flank line but no diagonal bar.

Most commonly the undertail is completely brownish (55% of birds examined; fig. 4d); in 23% of birds the brown extends up into the lower belly (fig. 4e) and in 22% the undertail is largely pale (fig. 4c), similar to Manx though usually dirtier and less contrasting. The transition between brownish and white areas, both in the underwing and in the undertail, is generally sharp and well defined, lacking the dirty appearance and diffuse contrasts of Balearic Shearwater.

Balearic Shearwater

Status, distribution and movements

The Balearic Shearwater is listed as Critically Endangered (BirdLife International 2015), and its breeding range is restricted to the Balearic Islands. The most recent population estimate is 3,193 breeding pairs, in 2009 (Arcos 2011). However, alternative estimates at sea indicate a global population of c. 25,000 individuals, which suggests a larger breeding population (Arcos *et al.* 2012). The population is in sharp decline (Oro *et al.* 2004). The breeding season extends from early March to the end of June; after that, birds move out of the Mediterranean and along the Atlantic Iberian coast, where they moult before continuing north as far as southern Britain and Ireland. Most return to the Mediterranean in early autumn

(Le Mao & Yésou 1993; Guilford *et al.* 2012), although small numbers are recorded in the Atlantic throughout the winter (Mouriño *et al.* 2003).

Moult

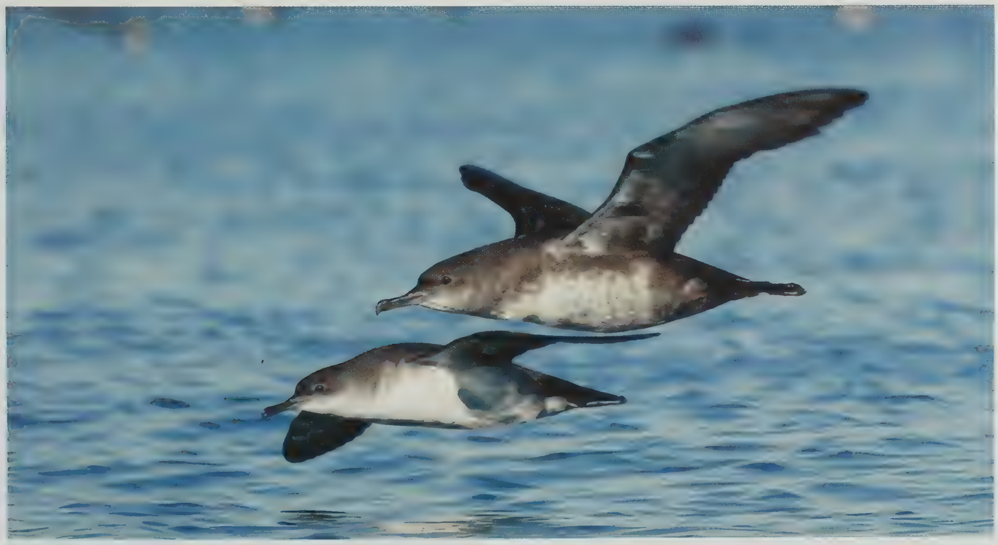
Being a short-distance migrant and relatively early breeder, the Balearic Shearwater is the earliest of the three species to moult. Moult timing is clearly associated with location, and early breeders (or non-breeders) in the Atlantic in June are in heavy moult, whereas those in Catalonia at the same time have not started their moult. In typical breeders, moult starts with inner primaries from late May to late July, outer primaries from early July to mid September and secondaries from late July to mid October (Yésou 1986; fig. 2). Moult takes place mainly in the Atlantic waters off southern Spain and Portugal, with birds moving to northern Spain, France and Britain & Ireland mostly in fresh plumage. It has been suggested that a significant proportion of the whole population remains along the Atlantic coast during the breeding season (e.g. Arcos *et al.* 2012) – these may be immature or older non-breeding birds, and their moult phenology may differ from that of breeders. Indeed, observations of 1,000+ birds off northwest Spain during the breeding season suggest that these birds have almost completed their moult by mid May (Mouriño *et al.* 2003).

Size, structure and flight action

Balearic is a relatively large shearwater, on average larger in all measurements than Manx and Yelkouan (table 1). Balearics are barrel-shaped, with a blunter vent pushing the centre of gravity to the rear, and they always give the impression of being fat. The tail looks short, with the feet projecting in the vast majority of individuals. Although the bill is, in fact, longer than in the other two, the thick base leads to a short- and blunt-billed impression, emphasised by the prominent nail. The head profile is smooth, with a slightly rounded forehead. Flight action is similar to that of Yelkouan, though giving the impression that wingbeats are deeper, perhaps simply as a result of its heavier appearance.

Plumage

Balearic Shearwater is the most uniform overall of the three species, only rarely looking as bicoloured as Manx or Yelkouan. However, it is also the most variable. The upperparts are chocolate brown and this colour is maintained year-round, though losing intensity as wear increases. The underparts are extremely variable, ranging from almost uniformly brown (<3%; these individuals can be surprisingly difficult to separate at sea from Sooty Shearwater *P. griseus*), to very pale, and thus similar to Yelkouan. In


Victor Paris

288. Balearic (above) and Yelkouan Shearwater (below), Castellon, Spain, December 2014. This side-by-side comparison reveals the larger size and bulky, pot-bellied structure of Balearic, and the slimmer, more attenuated appearance of Yelkouan.

Table 2. Identification criteria for the separation of Manx, Yelkouan and Balearic Shearwaters.

	Manx Shearwater	Yelkouan Shearwater	Balearic Shearwater
Overall structure	Long-winged, with a powerful body and prominent breast.	Short-winged, graceful and light. Slender body, lacking both a powerful breast and a pot belly.	Short-winged in proportion to relatively large size. Barrel-shaped and pot-bellied.
Level of contrast (dark/pale areas)	High: sharp transition between dark and white plumage.	Medium: as in Manx but slightly more diffuse.	Low: extensive transition areas giving a dirty or dusky overall impression.
Undertail-coverts	White, only the last row of feathers with dark marking in the outer web.	Extensively dark, dark sometimes reaching the legs. Almost white in the palest individuals, but never clean white.	Dark, with dark extending onto lower belly.
Underwing	Usually white but sometimes with a diagonal dark bar, broader in the forewing.	Usually with a diagonal dark bar, broader in the base of the trailing edge. Sometimes completely white.	Diffusely dark, usually with a diagonal bar, dark axillaries and trailing and leading edges.
Flanks	Completely white.	Fine dark line across wing base, often interrupted and sometimes absent.	Usually broad dark band across wing base.
Upperparts	Dark, almost black, becoming greyer with wear.	Dark brown, becoming much lighter (almost cinnamon) with wear.	Chocolate brown, losing intensity with wear.
Breast sides	Well-defined markings.	Blurred markings, sometimes giving a 'stitched' impression in the dark/white transition area.	Extensive brown markings, sometimes across the breast, creating a dirty impression.
Bill shape	Straight, of even width. The nail is only subtly pronounced, sometimes not even that.	Appears thin: straight at the base and middle, but with a pronounced curved nail.	Thick, especially at the base, thinner in the centre and broad again at the nail, giving undulating profile.
Forehead slope	Very marked, with sudden step separating the head from the bill.	Usually marked, but variable.	Smooth profile, and gentle forehead slope.
Foot projection and tail shape	Lacks foot projection; broad, square-shaped tail.	Feet usually project behind the narrow, pointed tail, toes sometimes bent to create an upward-pointing hook.	Feet project beyond the short tail.
Flight action	Long glides (sometimes arcing) alternated with powerful beats; appears effortless.	Frenetic, short glides and exhausting-looking long series of beats; can even resemble an auk.	Short glides, but more powerful and less frenetic beats, with the impression of a larger shearwater.

general, however, there is no sharp contrast between the upperparts and the underparts, with the dark upperpart colour gradually becoming paler across the flanks and underparts. Most birds (c. 80%) show extensive brown areas in the undertail, lower belly, breast, flanks and axillaries, with white restricted to the belly (fig. 4g). Brown markings in the underwing are typically diffuse and dirty (fig. 3h), and there is little difficulty in separating birds with this plumage from Yelkouan and Manx Shearwaters. However, pale birds with extensive white in the underparts – and which potentially cause confusion with Manx and Yelkouan – make up c. 15% of the population and this plumage is an important focus of this article.

Identification at sea

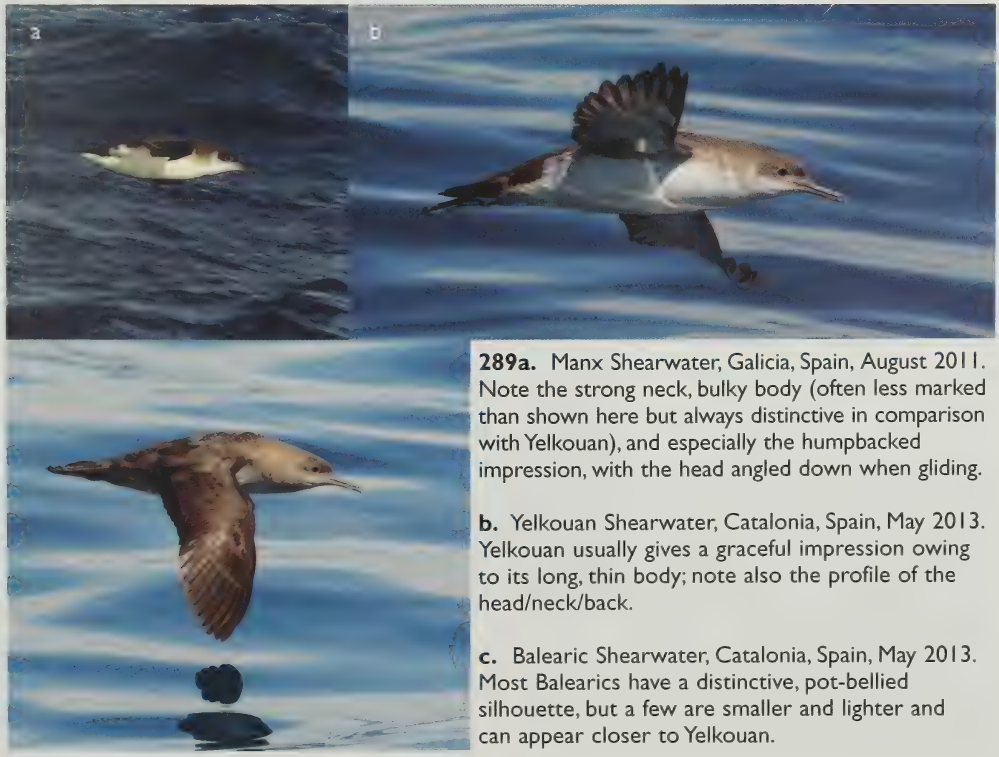
Separation of Manx and Balearic is relatively straightforward and dealt with elsewhere (Gutiérrez 2004; Robb *et al.* 2008), so we have focused on the separation of Manx and Yelkouan, and Yelkouan and Balearic. This is presented in species pairs in which the differences between each member of the pair are analysed in detail. Characteristics are divided into diagnostic (those in which there is little overlap between species) and supplementary (those which are more often present in one of the taxa but still with some overlap).

Manx and Yelkouan Shearwaters

Yelkouan Shearwater, despite its close phylogenetic relationship to Balearic Shearwater, is on average phenotypically closer to Manx. In some cases, especially in a vagrant context, high-quality images may be required to evaluate the relevant features safely, especially the undertail. The Manx Shearwaters from the Canary Islands (and perhaps Madeira) have been excluded from the following description; the phenotypic characteristics of this population are described separately.

Diagnostic characters

Structure Manx Shearwater is a powerful, long-winged bird, with a deep breast (somewhat pigeon-like) that pushes the centre of gravity forward, whereas Yelkouan appears lighter, more graceful and more balanced. In flight, Manx gives a 'brawny' impression, with a strong neck and a noticeable humpback, and it has a tendency to keep its head angled down. Yelkouan has a slimmer silhouette, including the neck and the underparts, with



Juan Sagardía

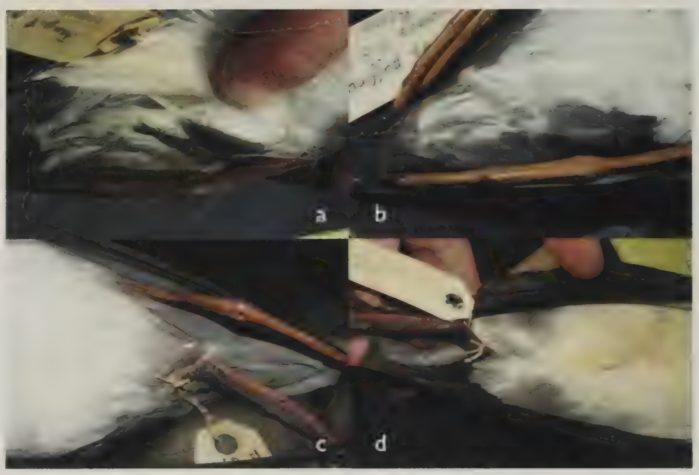
Fran Trabalon

Fran Trabalon

289a. Manx Shearwater, Galicia, Spain, August 2011. Note the strong neck, bulky body (often less marked than shown here but always distinctive in comparison with Yelkouan), and especially the humpbacked impression, with the head angled down when gliding.

b. Yelkouan Shearwater, Catalonia, Spain, May 2013. Yelkouan usually gives a graceful impression owing to its long, thin body; note also the profile of the head/neck/back.

c. Balearic Shearwater, Catalonia, Spain, May 2013. Most Balearics have a distinctive, pot-bellied silhouette, but a few are smaller and lighter and can appear closer to Yelkouan.



Marcel Gil © Natural History Museum of Denmark

290. Manx Shearwater (a) shows clean white undertail-coverts except for the outermost row, which have a distinctive pattern: the inner web is white, the outer web is wholly dark, with a sharp contrast at the shaft. This pattern is present in all coverts except the central pair (which is always completely dark) and the outermost, which is sometimes dark. A few individuals show a dirtier pattern, with small dark spots on the inner web, but the dark is always restricted to the outermost line of coverts. Most Yelkouans have a much more brownish undertail. The palest individuals (b) are reminiscent of Manx but the brown is always more extensive on the inner web and usually present on several rows of coverts. Most individuals show completely brownish undertail-coverts (c), whilst the brown extends to the lower flanks and onto the lower belly (d) in about a quarter of birds studied.

shorter and often blunter-tipped wings. The back and neck of Manx seem to merge into the head and the profile drops sharply from forehead to bill, forming a uniformly convex neck profile, ending abruptly when it reaches the steep forehead. In comparison, as a result of its slimmer neck and more pronounced nape, the back, neck and head of Yelkouan Shearwater are more distinct from each other – and the forehead slope appears less pronounced (see plates 285, 289, 297 and 298).

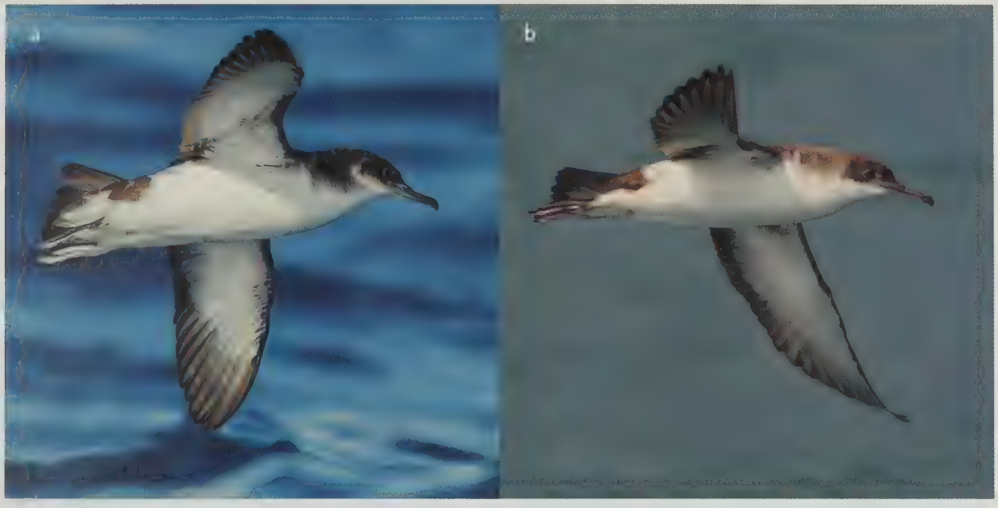
As observed by others (e.g. Garner 2008), Yelkouan Shearwater tends to periodically raise its head in flight (similar to, but perhaps less obviously than, Macaronesian Shearwater) and, although Manx can display similar behaviour, it is neither as obvious nor as frequently displayed. There seems to be a correlation between this behaviour and the size/structure of an individual, being more often observed in smaller (probably female) Yelkouans (pers. obs.).

Size difference between the two species may be important: direct comparison of specimens revealed the notably larger size of Manx, especially in body volume and breast depth. Although the structure of skins can be affected by the stuffing process, the same impression is given when comparing skins of both species with those of Balearic Shearwater, which serves as a useful size gauge.

Flank bar Yelkouan regularly shows a line across the wing base (c. 60%; see Yelkouan vs Balearic), but this is rarely observed in Manx from the North Atlantic. Note, however, that the wing 'crease' often produces a shading effect, which may cause confusion. Manx from the Canary Islands' population (see below) routinely show such a line and this feature must be considered with care.

Underwing pattern The presence of a diagonal axillary bar is indicative of Yelkouan, even if the flank line is absent. In Yelkouan, any bar is clearly defined, broadest in the trailing edge of the wing where it connects with the dark secondaries. It becomes narrower across the wing-coverts towards the wrist, usually terminating in a broader spot. In Manx, the diagonal bar is broadest at the wrist, less well defined than in Yelkouan, appearing more like several aligned patches (see plate 297). The bar narrows and sometimes fades towards the wing base. The overall impression is that in Yelkouan the bar 'grows' from the trailing edge of the wing base to the wrist, while the opposite is true for Manx (plates 292 & 293). That difference is even retained in birds with almost completely clean underwings: diffuse dark markings (dark tips to the coverts) are found in the wrist area in Manx and closer to the wing base in Yelkouan (e.g. plates 297 & 298).

Undertail and rear parts All but one Manx Shearwater examined showed a pure white



Klaus Bjerre

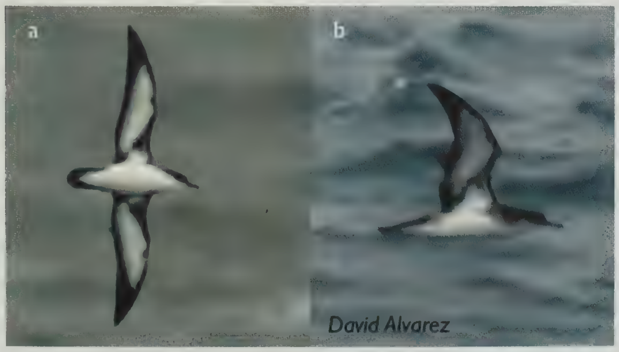
Daniele Occiato

291a. Manx Shearwater, Madeira, June 2012. When soaring, shearwaters typically spread the tail, making the undertail pattern quite obvious. The pattern shown here is diagnostic of Manx.

b. Yelkouan Shearwater, Tuscany, Italy, April 2010. In pale individuals, such as this, the brownish areas of the undertail can be restricted, and even in ideal conditions it is difficult to assess the real extent of brown. In most birds, however, the undertail looks dirty, less well defined and contrasting than in Manx.

undertail, with dark restricted to the outermost row of undertail-coverts, in which the central pair is wholly dark while otherwise dark is restricted to the outer web (fig. 4a). Some individuals show dark spots on the inner web too, giving a dirty impression at a distance, but any markings are always fine and (crucially) limited to the outermost line of coverts. One Manx examined showed extensive dark tips to the inner webs on the second and third central pairs of outermost undertail-coverts (fig. 4b).

Most Yelkouans show a much darker undertail area (fig. 4d), which is the key feature for separating these species. The undertail of Yelkouan may sometimes appear white in the field, but close inspection reveals a different pattern in the dark markings: the outer web is dark, but the patches in the inner webs are much larger than in Manx and scattered brown markings extend to the second- and third-outermost lines of coverts (plate 290; fig. 4c), which gives a less clean, less contrasting undertail.



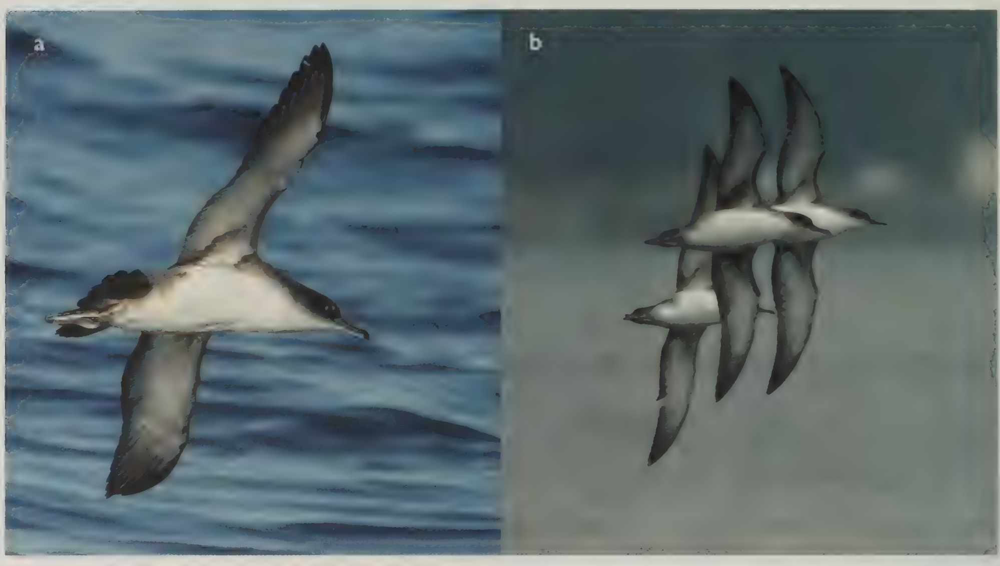
Steve Young

David Alvarez

292. Examples of Manx Shearwaters showing a diagonal axillary bar (**a** Cheshire & Wirral, September 2004; **b** Asturias, Spain, September 2011). The area around the bar closest to the forewing is invariably dirty, a feature not usually shown by Yelkouan.

Upperparts Overall, Manx is much darker, almost black in fresh plumage. The feathers become browner with wear but, since it moults later, it rarely shows a level of wear comparable with that of the two Mediterranean species in European waters. Yelkouan is browner-tinged above, becoming greyer as the plumage wears. Although light conditions can alter colour appearance, Yelkouan does not appear jet-black as Manx does, even under grey skies (plate 284).

Breast sides Another feature is the pattern of the dark feathers of the breast sides: Yelkouan shows a stippling pattern that shades from dark to pale, Manx shows parallel



Miguel Rouco

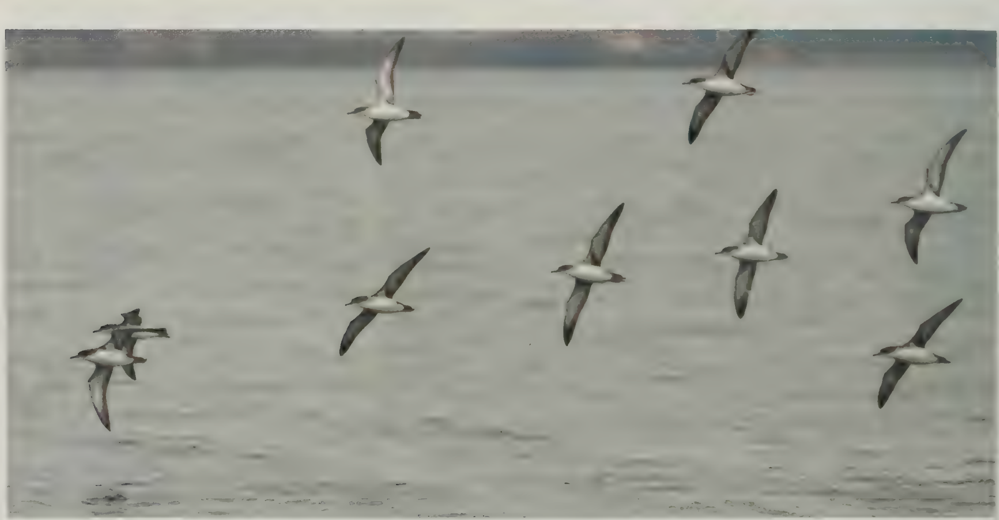
Hurmuz Yeniceli

293. Yelkouan Shearwater. Typical underparts (293a) include a fine and well-defined diagonal bar, broadest towards the trailing edge (compare with the Manx in plate 292). Extreme individuals (293b, centre) show a broad and dirty underwing, more similar to Balearic; but again note that the dark areas are most conspicuous away from the forewing. (a) Girona, Catalonia, Spain, February 2008; (b) Istanbul, Turkey, April 2009.

dark barring creating a 'zebra' pattern (plate 296). Extremely close views (and probably good photographs) are required, but this is worth keeping in mind.

Supplementary characters

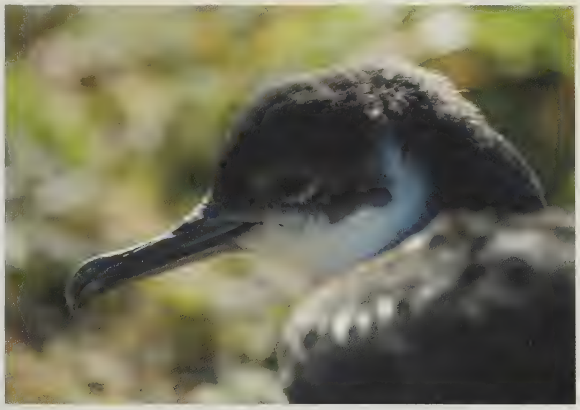
Bill and forehead Manx and Yelkouan show a different facial impression, the result of a combination of slightly different bill and forehead shape, and extension of black in the face. The bill shape is rather similar (although that of Manx is more even in depth, while in Yelkouan the nail is more curved and marked), but the steeper forehead of Manx gives a longer-billed impression. In Yelkouan, the forehead meets the bill at a shallower angle, giving a smoother profile. The angular forehead of Manx often looks like a distinctive bump in front of the eye, even at long distance. The extent of black in the face seems to change the jizz of the bird disproportionately.



Veyis Sarioguz

294. A flock of Yelkouan Shearwaters, showing a variety of underwing patterns; Istanbul, Turkey, April 2009.

Bill base and eye-ring The appearance of these features is difficult to assess without good photographs. Manx sometimes (around 15% of birds in our study) shows a thin, whitish border to the bill base (plate 295). None of the Yelkouans examined showed a similar pattern. In Manx, even where the white does not encircle the bill base, the white generally reaches above the gape line, so the difference between Manx and Yelkouan/Balearic recalls the difference in facial pattern between Semipalmated *Charadrius semipalmatus* and Ringed Plovers *C. hiaticula*. Differences are consistent across fresh/worn individuals, so this seems unrelated to plumage wear. In contrast, worn Yelkouans usually show an obvious eye-ring, which is less frequent in Manx in similar condition.

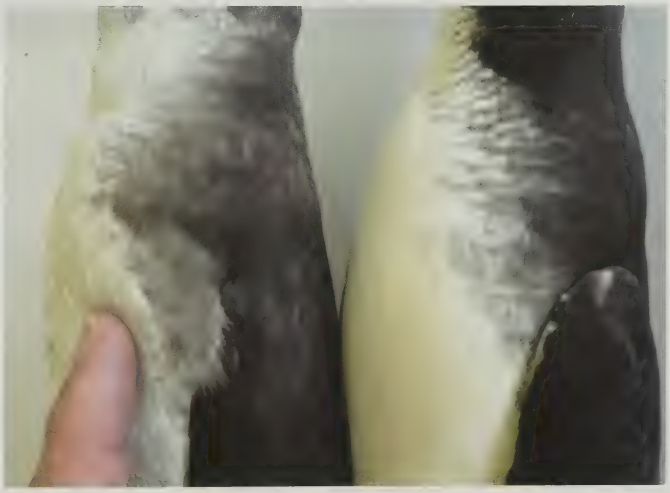


Mike Turtle

295. In c. 15% of Manx Shearwaters, a narrow line of white feathering extends above the gape line, a feature never found in Yelkouan. Note the broad, well-marked white auricular crescent; Yelkouan sometimes shows this feature, but there is never as much contrast as this. Pembrokeshire, June 2011.

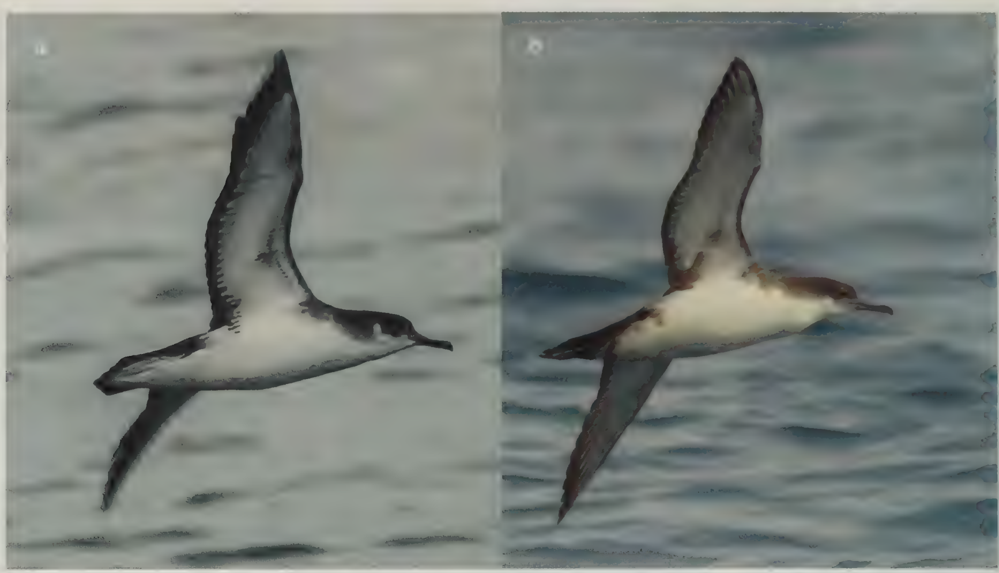
Base of primaries The base of the primaries is paler in Yelkouan (and Balearic) Shearwater; in Manx, the feathers are uniformly dark, giving a much greater contrast with the wing-coverts. The effect is similar to that in Scopoli's *Calonectris diomedea* and Cory's Shearwaters *C. borealis* respectively. This pattern usually extends to the secondaries, giving a more contrasting trailing edge in Manx. These differences are often obvious (e.g. plates 285 & 297), but the exact pattern can be more difficult to detect in some individuals (or perhaps in some light conditions, e.g. plate 298).

Foot projection and tail shape This is a structural character, traditionally considered diagnostic. In most Yelkouan, the feet project noticeably beyond the tail. Our study sample revealed foot projection in 13% of Manx, but the amount of projection is small compared with that of Yelkouan and Balearic. Furthermore, Yelkouan and Balearic tend to hold the tail closed, producing a pointed rear end to the body, whereas Manx usually flies with the tail slightly spread – and since the feet are rarely visible this gives a square-ended silhouette, quite different from that of a typical Yelkouan (plate 297). It is unclear which structural differences lead to foot projection in one species and not in the other. Measurements show that there are consistent differences in tail length (table 1) but that tail length varies by only 3–4 mm between species, while there are no significant differences in the tarsus. Given that measurements



Stephen Menzie / ©World Museum Liverpool

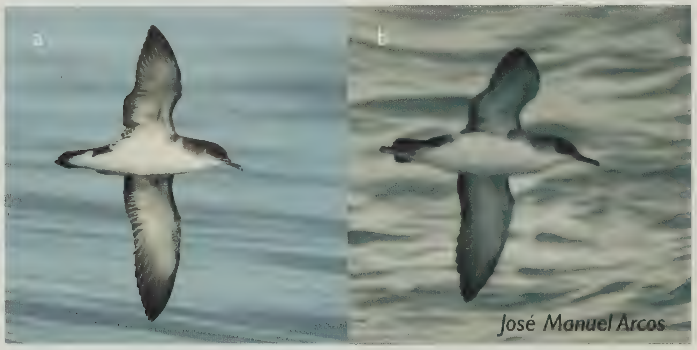
296. The pattern of the breast sides is subtly different between Manx (right) and Yelkouan Shearwaters. In Manx, the transition between dark upperparts and white underparts often shows 'zebra stripes', while in Yelkouan the transition zone is more diffuse and dirty-looking.



Andy Garnett

Fran Trabalon

297. Manx (left, Yorkshire, October 2011) and Yelkouan Shearwater (right, Catalonia, Spain, May 2011). Two classic, yet in some ways rather similar individuals. Note the auricular crescent of Manx, and the brown undertail of Yelkouan. Note also the underwing patterns, with the darker areas closest to the leading edge in Manx and to the trailing edge in Yelkouan.



Craig Nash

José Manuel Arcos

298. Some Manx (left, Co. Kerry, August 2012) and Yelkouan Shearwaters (right, Catalonia, Spain, November 2005) can be extremely similar. The conspicuous auricular crescent of the Yelkouan, which is probably a result of wear, is more diffuse than the (narrow) crescent on the Manx. The Yelkouan's undertail is dusky, and the pale base to the primaries gives a much less contrasting underwing.

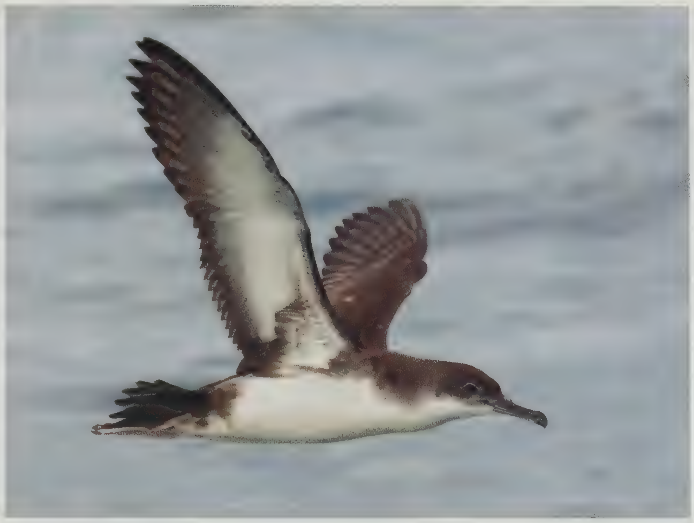
suggest this character is more variable than traditionally thought, especially in Manx, we recommend that it is only an indicative clue to identification.

Auricular crescent Manx shows a characteristic auricular crescent, typically well defined and pure white, which becomes more diffuse and less obvious with wear. Fresh Yelkouans can (very rarely) show a similar auricular crescent – more obvious in worn plumage in summer, although still typically more diffuse, brown-tinged and less sharply defined than that of Manx – while a few Manx lack the pale auricular crescent.

Yelkouan and Balearic Shearwater

Past assessments of the complex have generally accepted that Balearic and Yelkouan Shearwaters are relatively easy to separate. However, we found that Balearic Shearwater is much more variable than previously described with the palest birds overlapping in many characters with the darkest Yelkouans. Indeed, a few individuals seen off the Catalan coast (where both occur together) are, on present knowledge, impossible to identify. The plumage variation in Balearic is apparently continuous from dark to light. Here, we focus on separating pale Balearic from Yelkouan, since darker Balearic can invariably be separated with ease.

The degree of contrast between the dark and pale areas of the underparts (axillaries, flanks, undertail and breast) is extremely useful for identification. Yelkouan shows a greater contrast than Balearic, with a sharper transition between dark and pale areas. In Balearic, the gradual colour transition is characteristic, visible even at large distances, and it rarely gives the bicoloured impression of Yelkouan.



Daniele Occiato

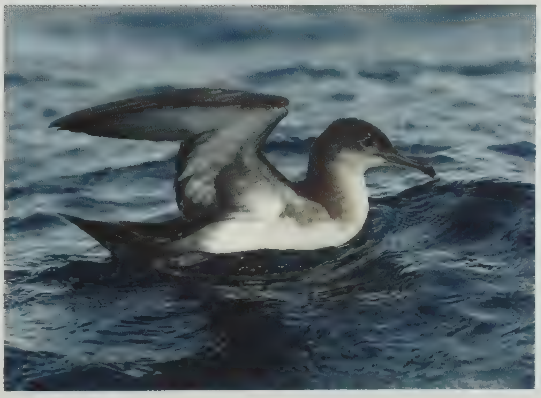
299. Yelkouan Shearwater, Tuscany, Italy, April 2010. The diagonal underwing bar and surrounding dark feathers are well defined, giving a sharp contrast with the surrounding white. The lateral bar across the wing base is always fine, and rarely complete.

Diagnostic characters

Structure Yelkouan is slimmer than Balearic, which looks much fatter and pot-bellied (plate 285). Table 1 suggests that there is no overlap in weight between the two species, with Balearic roughly 25% heavier (but note that sample size is unknown, and also that Genovart *et al.* (2007) referred to some overlap between female Balearic and male Yelkouan). In terms of total length, Yelkouan is considerably smaller, but direct comparison is needed to judge this accurately in the field (plate 288). The centre of gravity is towards the rear in Balearic, whereas Yelkouan is more balanced. Yet occasionally some Yelkouans look as bulky as typical Balearics, while the latter can look surprisingly slim at times. These differences are probably sex-related, possibly further exaggerated by an individual's condition.

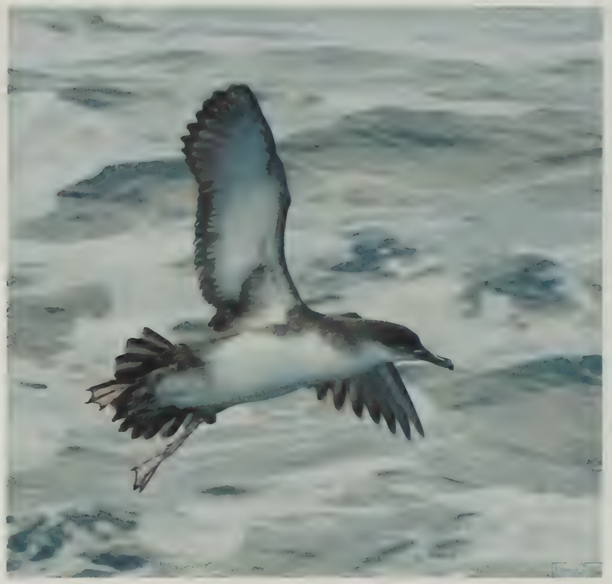
Underwing pattern From a distance, the greater contrast in Yelkouan causes the diagonal underwing bar to appear as a sharp line; the underwing-coverts look clean white, broken only by this bar. In Balearic, the diagonal bar is broader and appears more diffuse, since it is surrounded by small dark feathers (plates 285 & 287; fig. 3). This gives the underwing a dirty appearance even in pale individuals (plate 300; fig. 3). Some Yelkouans show a broader, more sullied diagonal bar, but the level of contrast still appears high (plate 299 & fig. 3, and compare with a pale Balearic in plate 303). There is, however, a small overlap in this feature.

Flank bar In photographs examined, c. 60% of Yelkouans showed a brown line along the flanks just below the wing base. This line is always fine and well defined, often thin and/or broken in the middle. This character is variable in Balearic; while it can be absent or barely visible in some extreme pale individuals (plate 300), most individuals (>99%) show a broad bar of uniform width, often diffuse. The presence of a broad dark band along the flanks therefore rules out Yelkouan, while the complete absence of a dark band strongly indicates Yelkouan.



Juan Sagardía

300. A few Balearic Shearwaters have a very clean underwing, yet still less contrasting than that of Yelkouan. Note the extensive brownish feathers surrounding the broad diagonal bar, especially at the leading edge of the wing, a feature which is never shown by Yelkouan; Galicia, Spain, August 2011.



Juan Bécares

301. This bird, photographed in Catalonia, Spain, in April 2012, shows typical Yelkouan plumage, but also a thick bill, and a smooth forehead profile, giving rise to a Balearic-like facial impression. It is probably a large male Yelkouan, but the jizz clouds the identification.

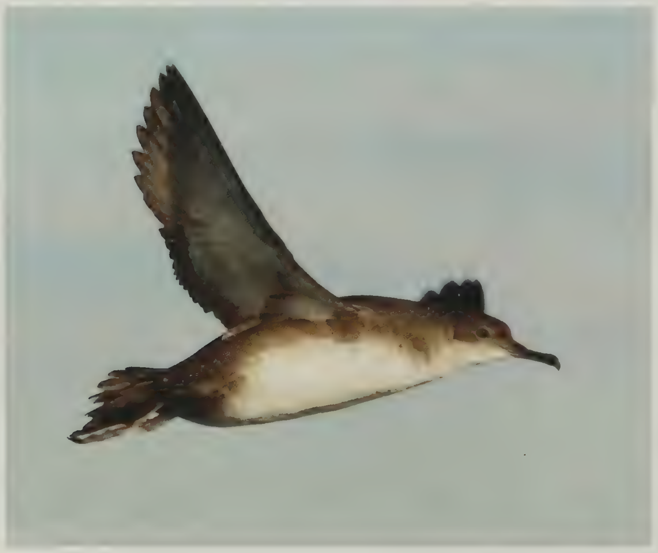
Undertail and rear parts In most Balearic Shearwaters, the brown of the upperparts reaches the rump sides and extends to the legs, wrapping around the ventral area (fig. 4). In the darkest Yelkouan, if brown feathers are present on the underparts, they are concentrated on the lower flanks and any dark extending down from the rump is limited, not forming a continuous dark wrap-around above the leg bases (plate 290, fig. 4).

Supplementary characters

Breast sides A complete brown 'shawl', meeting in the centre of the breast – sometimes rather well defined but usually more diffuse – is diagnostic of Balearic. Even if this is incomplete, Balearic tends to show brown extending from the upperparts onto the breast. However, some Yelkouan can show a similar incomplete shawl.

Bill shape Bill shape is a key feature in the hand (Militao *et al.* 2014) and can be useful in the field. Balearic shows a thick, powerful bill with an undulating profile: deep at the base, thinner in the middle, deeper again at the tip – so the upper edge is slightly concave. Yelkouan's bill is straighter, of more even depth along its length (plate 286). At a distance, it looks tiny and much thinner than that of Balearic.

Forehead The head profile is hard to judge from a distance but is useful with close views. The forehead is steeper and more pronounced in Yelkouan; Balearic shows a smoother, more rounded head profile. This affects the impression of the bill: Balearic's thick bill looks blunt and heavy, almost merging with the head, whereas Yelkouan's thin bill looks slim. Small Yelkouans with a tiny bill can resemble one of the small *Puffinus* (plate 286d).



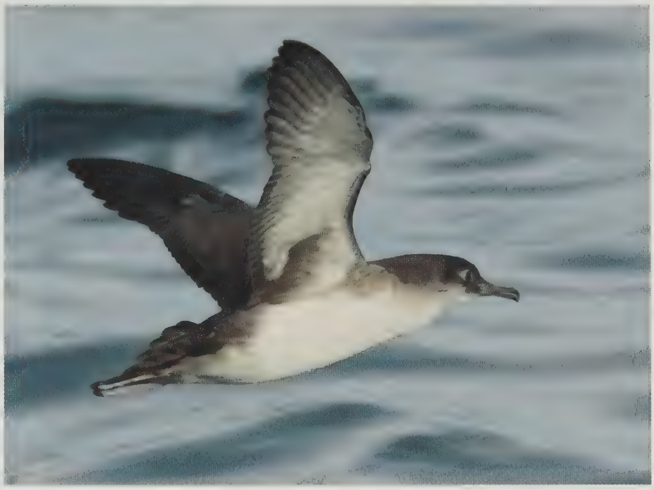
Victor Paris

302. A few Balearic Shearwaters are surprisingly dark above and pale below. Here, the broad band at the wing base and the brown wrapping around the lower belly rules out Yelkouan. This bird, perhaps a female, shows a rather fine bill and steep forehead reminiscent of Yelkouan; Castellon, Spain, December 2011.

Confusing individuals

Manx Shearwaters in the Canary Islands

When analysing photographs for this paper, we noticed that Manx Shearwaters from the


James Phillips

303. Balearic Shearwater, Dorset, August 2011. In a few individuals, the brown is so restricted that it matches the extent shown by Yelkouan, though the pattern is more diffuse and dirtier, with limited contrast between brown and white. This bird shows typical Balearic structure.

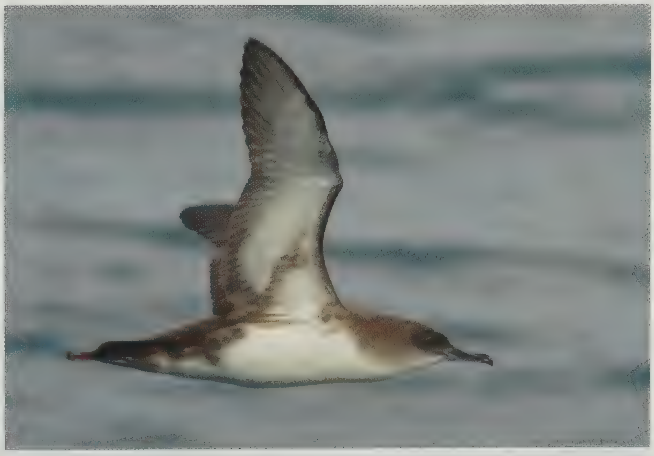
Canary Islands differed from those breeding farther north in the Atlantic. At least some showed less contrast between the upperparts and underparts than 'classic' Manx, with a diffuse area of transition noticeable in, for example, the breast sides. Some birds show extensive, dirty-brown undertail-coverts as well as a dark diagonal bar and a flank bar (plate 307), two features characteristic of Yelkouan Shearwater and not present in northern Manx, while the trailing edge to the underwing also recalls Yelkouan, with rather pale bases to the underside of the flight feathers. In addition, Canary Islands Manx are smaller than birds farther north (Beneharo Rodríguez pers. comm.). Nonetheless, they retain the classic Manx structure and, if seen properly, they give the impression of a typical Manx despite the confusing plumage.

Further research is required to understand these characters and their variability. It would also be interesting to study birds from the Madeiran population, which do not regularly show these 'pro-Yelkouan features' (pers. obs.); they do, however, reportedly appear rather small in the field. Despite the phenotypic differences, consistently shown by seven individuals studied (including skins of birds collected at colonies in the Canary Islands), mtDNA analysis has shown birds from the Canaries to be 99.8% identical to published sequences from birds in the Faroe Islands (Martin Collinson pers. comm.).

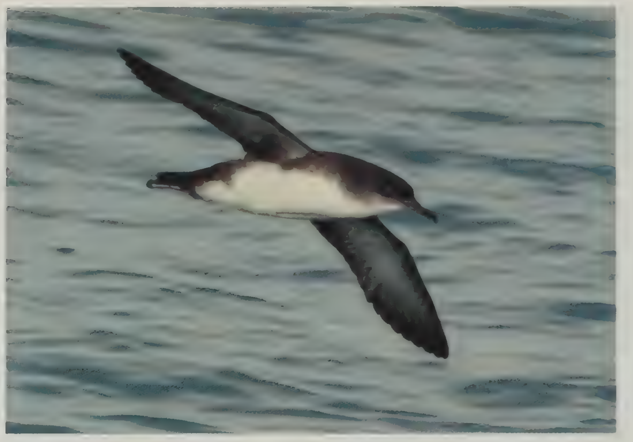
Since the Canaries population is highly endangered (with, at most, a few hundred birds), individuals are unlikely to be regular in northern waters. Furthermore, other Procellariidae from the Canaries, such as Macaronesian Shearwater and Bulwer's Petrel *Bulweria bulwerii*, are rare in northern waters, apparently preferring to move south during fishing expeditions and post-breeding dispersal (Flood & Fisher 2011; Ramos *et al.* 2013). Yet a sighting in northern Europe of an individual such as that shown in plate 307 would undoubtedly generate debate and controversy.

'Menorcan shearwaters'

In 2001 it was found that the colony of presumed Balearic Shearwaters at La Mola de


Fran Trabalon

304. Balearic or Yelkouan Shearwater, Catalonia, Spain, May 2011. This individual combines Balearic-like plumage ground colour and jizz (with strong neck, smooth head profile, and bill with deep base and prominent nail) with a plumage pattern typical of Yelkouan. We have not observed birds like this at the Bosphorus.

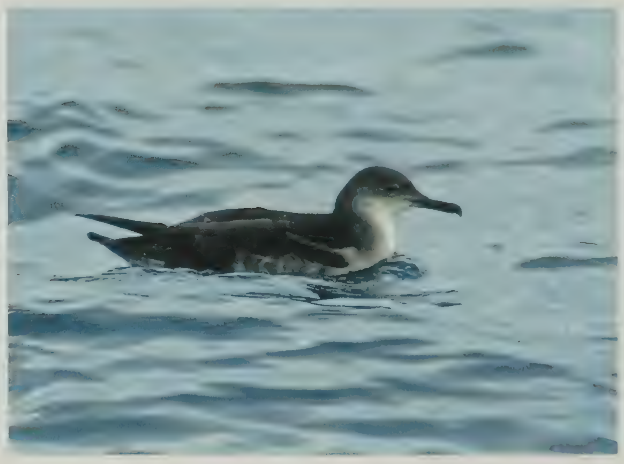


Vincent Lemoine

305. Balearic or Yelkouan Shearwater, Montpellier, France, December 1999. The broad and diffuse brownish diagonal axillary bar and relatively broad band along the flank are just outside the range of variation for Yelkouans in the Bosphorus. This bird is most probably Balearic but such difficult individuals are perhaps best left unidentified.

Maò, on Menorca, was inhabited by smaller shearwaters with unexpectedly whitish underparts, subsequently reported to be the first breeding Yelkouan Shearwaters for the Balearic Islands (Ruiz & Marti 2004). This colony comprises c. 100–150 breeding pairs (<3.8% of Balearic or <1% of Yelkouan global populations). Genetic studies revealed a mix of Yelkouan and Balearic Shearwater genotypes, suggesting reproductive isolation is not complete, although the differences between both types were smaller than between Balearics and Yelkouans from traditional breeding sites (1.6% and 2.2% divergence, respectively). Although this was initially suspected to be a mixed colony of the two species (Genovart *et al.* 2005), subsequent work suggested that birds from this Menorcan population should remain classified as Balearic Shearwater (Genovart *et al.* 2007). The population has attracted much attention, focusing on vocalisations (Robb *et al.* 2008; Curé *et al.* 2012), genetics (Genovart *et al.* 2007), and movements and migratory behaviour (Ruiz & Martí 2004; Guilford *et al.* 2012). The birds are described as phenotypically closer to Yelkouan, although some individuals reportedly resemble Balearic. The work on vocalisations was not conclusive, although their calls could be closer to Yelkouan. Data-logger results show that dispersal during the breeding period follows a pattern more similar to Yelkouan, foraging to the east to Italy and southern France and frequently visiting Yelkouan colonies in these areas (Ruiz & Martí 2004). An ongoing study of migratory behaviour has revealed that Menorcan birds show behaviour intermediate between Yelkouan and Balearic, remaining in the western Mediterranean during autumn and winter or even reaching Atlantic waters in southern Spain. Taking into account this mixture of phenotypic and ecological characteristics, these birds have often been treated as hybrids or unidentified 'Menorcan shearwater' (Robb *et al.* 2008). The most recent genetic data suggest that this population originated from (recent?) contact between both species at the La Mola colony after separation for a long period (Genovart 2012; Meritxell Genovart pers. comm.).

In the context of field identification of the *puffinus/yelkouan/mauretanicus* complex, we examined seven Menorcan individuals (from photographs). We found them phenotypically very similar to Yelkouan Shearwater, and not separable from that species with



Beneharo Rodríguez

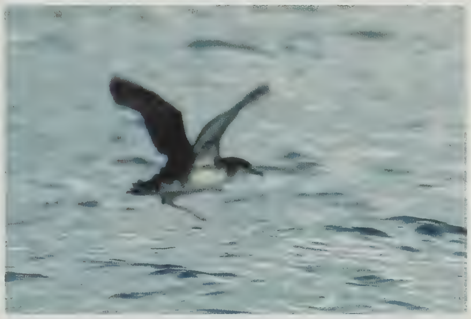
306. Manx Shearwater, Canary Islands, April 2007. Note the brownish ground colour of the upperparts and dirty areas on the breast, flanks and undertail. The long straight bill and facial impression are typical of Manx, however.

certainty in the field. These conclusions are preliminary and further work at the colony or with tagged birds may shed more light. In recent years, 'Menorcan shearwater' has been used as a convenient dumping ground for many records of 'confusing Yelkouans' in the Atlantic. We suggest that many such records probably involve (very) pale Balearics.

Unidentifiable Balearic and Yelkouan Shearwaters

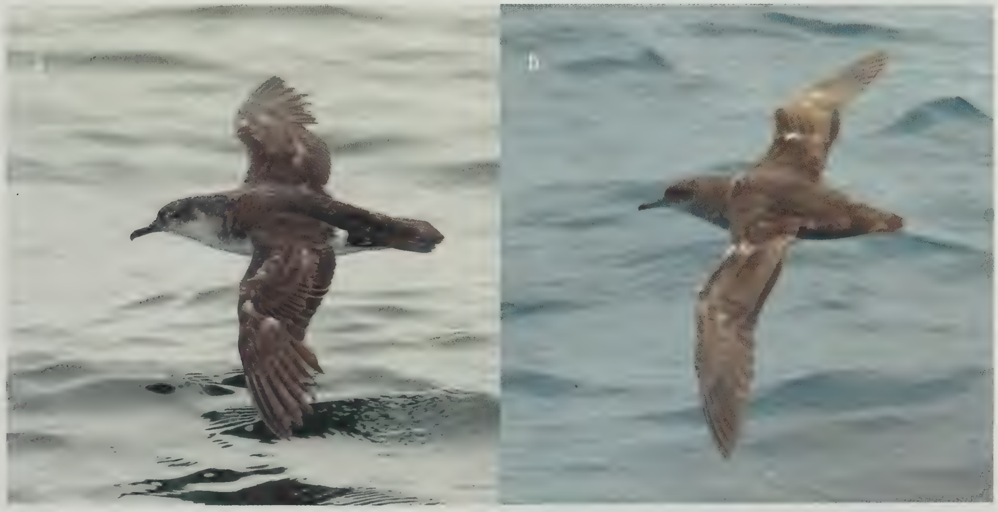
Balearic and Yelkouan Shearwaters are recently diverged sister species with, as described above, some recent contact reported (or suspected). An easy solution for difficult birds is to suggest they are hybrids, or 'Menorcan shearwaters', but if Menorcan birds are inseparable from Yelkouan in the field, what are these 'intermediates'?

There is, in our opinion, enough evidence to suggest that a few 'pure' Balearic Shearwaters (i.e. outwith the geographical range of any expected contact with Yelkouan, for example breeding on Mallorca) can show 'intermediate' phenotypes. Birds with plumage closer to Yelkouan (e.g. plates 300 & 303) but showing typical Balearic structure (large size, pot-bellied jizz) are seen with some frequency in the North Atlantic, where (based on data-logger studies) Menorcan birds are expected to be rare. In addition, some of these pale birds have been found in the breeding colonies in Mallorca (Meritxell Genovart pers. comm.).


Beneharo Rodriguez

307. Manx Shearwater, Canary Islands, April 2007. Manx breeding in the Canaries often show a diagonal axillary bar and a complete flank bar, as well as reduced contrast between white and dark areas compared with Manx breeding farther north. Note also the extension of dark onto the breast. Although research is still needed to understand the variation among this population, it is clear that some birds show features typically associated with Yelkouan.

If a bird is a pale Balearic at the lower size limit of that species (which might be close to, or overlap with, Yelkouan; table 1), field identification could be extremely tough. In Catalan waters, where Balearic, Yelkouan



Eric Preston

Fran Trabalon

308a. A heavily worn Manx Shearwater, California, USA, September 2008. Birds with such worn outer primaries are probably second-calendar-year birds. Note how wear reduces the contrast between the upperparts and underparts.

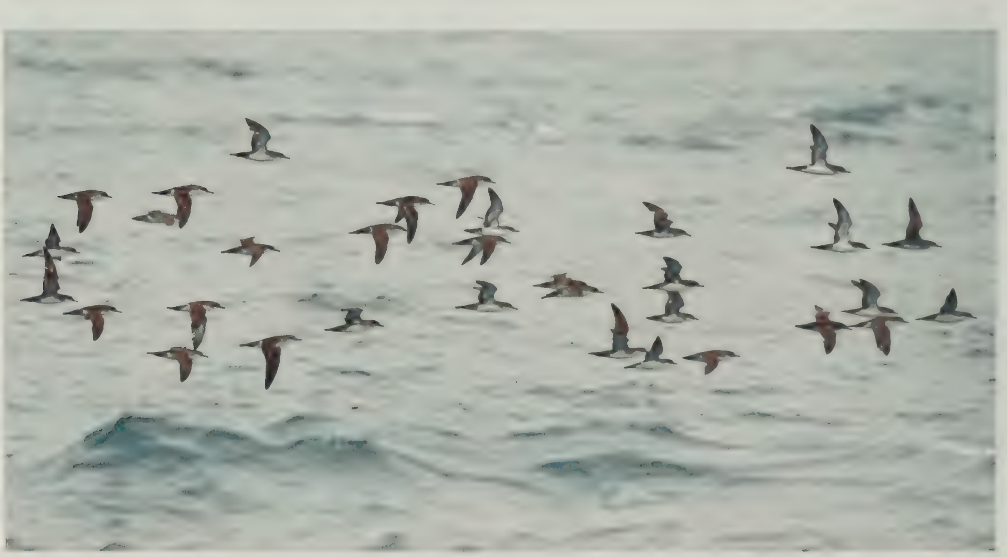
b. Balearic Shearwater, Catalonia, Spain, May 2013. A few (<5%) Balearic and Yelkouan Shearwaters do not show foot projection. However, the tail always appears short when compared with Manx (cf. plate 308a).

and possibly 'Menorcan' Shearwaters are regular, we consider that a small percentage of individuals are not safely identifiable, even with high-quality photos. Typically, the structure of these birds is intermediate between that of Yelkouan and Balearic: the forehead is often shallow and the bill is deep, but they lack the characteristic pot-bellied shape of Balearic. The plumage, however, is Yelkouan-like (see plates 304 & 305), they tend to show a broad but well-defined diagonal bar, and extensive brown in the undertail-coverts, at the limit of variation for Yelkouan in the Bosphorus. After observing several of these individuals at sea, our impression is that they are small and very pale Balearics, but we cannot offer a robust and strong argument until more evidence emerges from the breeding grounds.

Identification from land

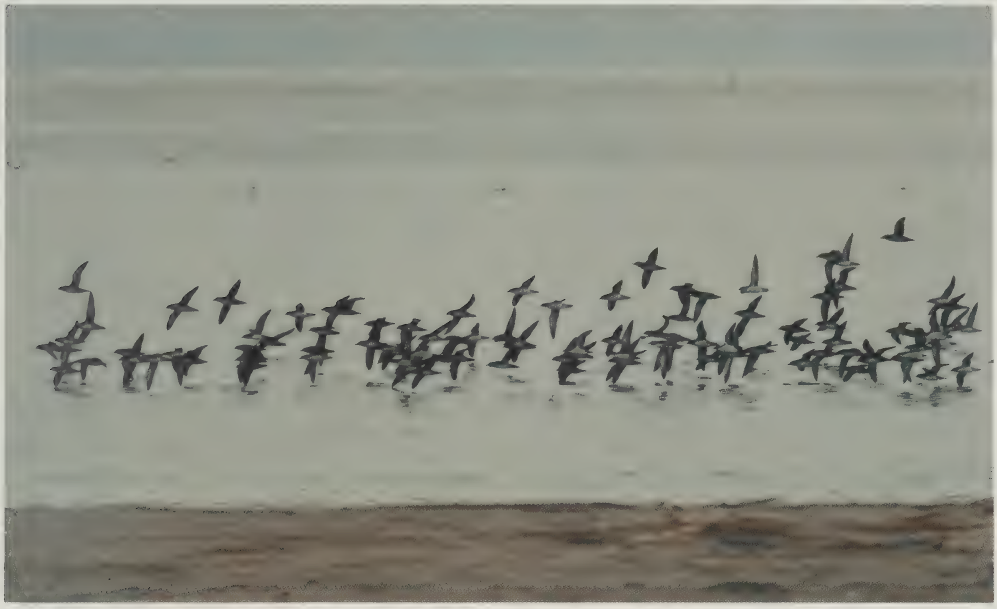
It is perhaps not surprising that most extralimital claims of Yelkouan Shearwaters in the Atlantic or Manx Shearwaters in the Mediterranean come from land-based observers, and the typical long-distance and brief views of seabirds seen from land may also lead to a higher misidentification rate. Most seawatchers agree that they often work on gut feeling, which equates to a very quick assessment of coloration, structure and flight action. Yet it is worth paying attention to certain details that can still be observed, even at distance, and ideally taking photographs to address them objectively. Imagine that you encounter a potential Yelkouan when seawatching. The first impression causes doubts: is it a Yelkouan or a Balearic? Or is it a Yelkouan or a Manx? In this section we rebuild the process of identification of a putative Yelkouan, with the emphasis on identification from land. Assessing the diagnostic features is difficult with a bird that is beating its wings rapidly and perhaps regularly disappearing in wave troughs, and we feel that photographs such as plates 309 & 310 are mandatory to achieve a safe identification. If the observer's position is well above sea level, this can lead to shadows in the underwing and undertail, which complicate the identification.

In an encounter with a bird that seems 'too pale for Balearic', coloration is the essential starting point. For Yelkouan, the underwing must be highly contrasting, preferably completely clean. The flanks and underparts should look white, even at distance, the white extending at least as far as the legs. The upperparts are also important, mainly to judge the wear. A pale brown shearwater is more likely to be a worn Balearic, which is also more likely to show whiter underparts than a fresh bird. In Yelkouan, the underparts must contrast with the upperparts, whether the bird is worn or not. Structure is also crucial: Balearic is more pot-bellied,



Mehmet Hanay

309. At distance, Yelkouan Shearwaters appear graceful and slim, rather different from the comparatively powerful-looking Manx and pot-bellied Balearic; Istanbul, Turkey, June 2009.



Matxalen Pauly

310. Mixed flock of Balearic and Yelkouan Shearwaters, Catalonia, Spain, December 2011. When seen in mixed flocks, Yelkouans are readily distinguished from Balearics by their whitish underparts, smaller size and generally more delicate appearance.

Yelkouan slimmer and more graceful. From a distance, structure and flight action combined mean that Yelkouan can recall an auk: shorter-bodied and with flappier wingbeats than Balearic.

If the choice is between Yelkouan and Manx, structure is the key consideration. Yelkouan is always slimmer and more delicate, with shorter wings. The nape is usually noticeable, whereas the strong neck of a Manx leads to a continuous convex silhouette from the back to the bill. In addition, the angular forehead of Manx is surprisingly distinctive at distance. Even if the feet do not project beyond the tail, from a distance the rear parts of a Yelkouan Shearwater look more pointed, compared with the bulkier rear and square-shaped tail of Manx. Finally, the Yelkouan-like structure should be accompanied by evident dark marking in the undertail, although it is important to consider the effects of shading. It is usually impossible to assess the pattern of the underwing in detail through a telescope, but the dark area in the underwing-coverts of Yelkouan is always close to the trailing edge. Manx underwing-coverts *can* look as dark as in Yelkouan, but the dirty area is always close to the leading edge, around the wrist, usually creating a triangle-shaped dark area noticeable from some distance. A shearwater with a broad, well-defined dark trailing edge to the underwing would most likely be a Manx.

Flight action can also be quite useful, although it depends on wind and sea conditions. Yelkouan does not soar as much as Manx and its flight is frenetic and exhausting compared with the more elegant and effortless Manx. Yelkouan's tendency to raise its head (Manx keeps it facing the water) can be visible from a surprisingly large distance, but is not always obvious.

Coupled with photographs, taking note of all of the above details should provide the key evidence for an extralimital record (with that caveat that a Menorcan shearwater would be impossible to separate from Yelkouan given present knowledge).

Acknowledgments

We thank the many photographers who kindly allowed us to reproduce here, or simply analyse, an outstanding number of photographs. Dilek Sahin provided information and contacts regarding Yelkouan Shearwaters in Turkey. Veronica Cortes, David García, Manolo García-Tarrasón and Teresa Militao facilitated information and allowed us to examine some shearwater corpses from their studies. Meritxell Genovart patiently answered our questions about Menorcan shearwaters. Access to Natural History Museum Tring, World Museum Liverpool, and Natural History Museum of Denmark was possible thanks to Mark Adams, Tony Parker and Jan Bolding

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References

Arcos, J. M. 2011. International species action plan for the Balearic Shearwater *Puffinus mauretanicus*. SEO/BirdLife & BirdLife International.

—, Arroyo, G. M., Bécares, J., Mateos-Rodríguez, M., Rodriguez, B., Muñoz, A. R., Ruiz, A., de la Cruz, A., Cuenca, D., Onrubia, A., & Oro, D. 2012. New estimates at sea suggest a larger global population of the Balearic Shearwater *Puffinus mauretanicus*. *Proceedings of the 13th Medmaravis Pan-Mediterranean Symposium*, pp. 84–94. Alguero, Sardinia, Italy.

Baccetti, N., Fracasso, G., & Gotti, C. 2014. La lista CISO-COI degli uccelli italiani – Parte seconda: le specie naturalizzate (cat. C) e le categorie 'di servizio' (cat. D, E, X). *Avocetta* 38: 1–21.

Bernis, F., & Tellería, J. L. 1981. La migración de las aves en el Estrecho de Gibraltar (época posnupcial). Universidad Complutense de Madrid, Spain.

BirdLife International. 2015. IUCN Red List for birds. www.birdlife.org

Blondel, J., & Isenmann, P. 1981. *Guide des Oiseaux de Camargue*. Delachaux & Niestlé, Paris.

Borg, J. J., Sultana, J., Heidrich, P., & Wink, M. 1999. First record of the Manx Shearwater *Puffinus puffinus* in Malta: evidence from morphometric data and DNA analysis. *il Merill* 29: 18–20.

Bourgeois, K. 2012. Yelkouan Shearwater *Puffinus yelkouan*. Updated state of knowledge and conservation of the nesting populations of the Small Mediterranean Islands. PIM, Albatross Project.

— & Dromzée, S. 2014. Moulting strategies of the Yelkouan Shearwater *Puffinus yelkouan* during the breeding season. *J. Ornithology* 155: 265–271.

Bourne, W. R. P., Mackrill, E. J., Paterson, A. M., & Yésou, P. 1988. The Yelkouan Shearwater *Puffinus (puffinus?) yelkouan*. *Brit. Birds* 81: 306–319.

Brooke, M. de L. 2010. *The Manx Shearwater*. Poyser, London.

Cade, M. 1983. The possibility of east Mediterranean Manx Shearwaters occurring in British waters. *Brit. Birds* 76: 413.

Curé, C. N., Mathevon, N., Mundry, R., & Aubin, T. 2012. Acoustic cues used for species recognition can differ between sexes and sibling species: evidence in shearwaters. *Anim. Behav.* 84: 239–250.

Curtis, W. F., Lassey, P. A., & Wallace, D. I. M. 1985. Identifying the smaller shearwaters. *Brit. Birds* 78: 123–138.

Flood, B., & Fisher, A. 2011. *Multimedia Guide to North Atlantic Seabirds: Storm-petrels and Bulwer's Petrel*. Pelagic Birds & Birding Multimedia ID Guides, Isles of Scilly.

Fraser, G. S., Russell, J., Robertson, G. J., Bryant, R., & Fifield, D. 2013. Prospects for the Manx Shearwater colony on Middle Lawn Island, Newfoundland, Canada. *Marine Ornithology* 41: 137–140.

Garner, M. 2008. *Frontiers in Birding*. BirdGuides, London.

Genovart, M., Juste, J., & Oro, D. 2005. Two sibling species sympatrically breeding: a new conservation concern for the critically endangered Balearic Shearwater. *Conservation Genetics* 6: 601–606.

—, Oro, D., Juste, J., & Bertorelle, G. 2007. What genetics tell us about the conservation of the critically endangered Balearic Shearwater? *Biol. Conserv.* 137: 283–293.

—, Juste, J., Contreras-Diaz, H., & Oro, D. 2012. Genetic and phenotypic differentiation between the critically endangered Balearic Shearwater and neighboring colonies of its sibling species. *J. Heredity* 103: 330–341.

Guilford, T., Meade, J., Willis, J., Phillips, R. A., Boyle, D., Roberts, S., Collett, M., & Freeman, R. 2009. Migration and stopover in a small pelagic seabird, the Manx Shearwater *Puffinus puffinus*: insights from machine learning. *Proc. Biol. Sci.* 276: 1215–1223.

—, Wynn, R., McMinn, M., Rodríguez, A., Fayet, A., Maurice, L., Jones, A., & Meier, R. 2012. Geolocators reveal migration and pre-breeding behaviour of the critically endangered Balearic Shearwater *Puffinus mauretanicus*. PLoS ONE 7(3): e33753.

Gutiérrez, R. 2004. Identification of Yelkouan, Balearic and Manx Shearwaters. *Birding World* 17: 111–122.

Hagemeijer, E. J. M., & Blair, M. J. 1997. *The EBCC Atlas of European Breeding Birds: their distribution and abundance*. Poyser, London.

Harris, M. P. 1966. Age of return to the colony, age of breeding and adult survival of Manx Shearwaters. *Bird Study* 13: 84–95.

Harrop, A. H. J., Collinson, J. M., Dudley, S. P., Kehoe, C., & the British Ornithologists' Union Records Committee. 2013. The British List: a checklist of the birds of Britain. 8th edn. *Ibis* 155: 635–676.

Heidrich, P., Amengual, J. F., & Wink, M. 1998. Phylogenetic relationships in Mediterranean and North Atlantic shearwaters (Aves: Procellariidae) based on nucleotide sequences of mtDNA. *Biochemical Systematics and Ecology* 26: 145–170.

—, —, Ristow, D., & Wink, M. 2000. Phylogenetic relationships among the Procellariiformes based on nucleotide sequences, with special consideration of Mediterranean and North Atlantic Shearwaters. In: Yésou, P., & Sultana, J. (eds.), *Monitoring and Conservation of Birds, Mammals and Sea Turtles of the Mediterranean and Black Seas. Proceedings of the 5th MEDMARAVIS Symposium, Gozo, Malta, October 1998*, pp. 159–175. Environment Protection Department, Malta.

Howell, S. 2012. *Petrels, Albatrosses and Storm-petrels of North America*. Princeton University Press, Princeton.

del Hoyo, J., Collar, N. J., Christie, D. A., Elliott, A., & Fishpool, L. D. C. 2014. *Illustrated Checklist of the Birds of the World*. Lynx Edicions & BirdLife International, Barcelona.

Irish Rare Birds Committee. The Irish List. www.irbc.ie

Langman, M., & Darlaston, M. 2009. Could this be Britain's first documented Yelkouan Shearwater? *Devon Birds* 62: 31–34.

Lee, D. S. 1995. The pelagic ecology of Manx Shearwaters *Puffinus puffinus* off the southeastern United States of America. *Marine Ornithology* 23: 107–119.

Le Mao, P., & Yésou, P. 1993. The annual cycle of Balearic Shearwaters and western Mediterranean Yellow-legged Gulls: some ecological considerations. In: Aguilar, J. S., Monbailliu, X., & Paterson, A. M. (eds.), *Status and Conservation of Seabirds. Proceedings of the 2nd Mediterranean Seabird Symposium*, pp. 135–145. SEO, Madrid.

McCartney, P. 1986. Mediterranean races of Manx Shearwater in British waters. *Brit. Birds* 79: 351–352.
Militao, T., Gómez-Díaz, E., Kaliontzopoulou, A., González-Solís, J. 2014. Comparing multiple criteria for species identification of two recently diverged seabirds. *PLoS ONE* 9(12): e115650.
Mitchell, P. I., Newton, S. F., Ratcliffe, N., & Dunn, T. E. (eds.) 2004. *Seabird Populations of Britain and Ireland.* Poyser, London.
Mlodinow, S. 2004. Manx Shearwaters in the north Pacific Ocean. *Birding* 36: 608–615.
— 2005. Manx Shearwater update. *Birding* 37: 348–349.
Mouriño, J., Arcos, F., Salvadores, R., Sandoval, A., & Vidal, C. 2003. Status of the Balearic Shearwater (*Puffinus mauretanicus*) on the Galician coast (NW Iberian Peninsula). *Scientia Marina* 62 (Suppl. 2): 135–142.
Onley, D., & Scofield, P. 2007. *Albatrosses, Petrels and Shearwaters of the World.* Helm, London.
Oro, D., Aguilar, J. S., Igual, J. M., & Louzao, M. 2004. Modelling demography and extinction risk in the endangered Balearic Shearwater. *Biol. Conserv.* 116: 93–102.
Péron, C., Grémillet, D., Prudor, A., Pettex, E., Saraux, C., Soriano-Redondo, A., Authier, M., & Fort, J. 2013. Importance of coastal Marine Protected Areas for the conservation of pelagic seabirds: the case of Vulnerable Yelkouan Shearwaters in the Mediterranean Sea. *Biol. Conserv.* 168: 210–221.
Pyle, P. 2008. *Identification Guide to North American Birds.* Part II. Slate Creek Press, California.
Raine, A. F., Raine, H., Borg, J. J., & Meirinho, A. 2011. Post-fledging dispersal of Maltese Yelkouan Shearwaters *Puffinus yelkouan. Ringing & Migration* 26: 94–100.
—, Borg, J. J., Raine, H., & Phillips, R. A. 2012. Migration strategies of the Yelkouan Shearwater *Puffinus yelkouan. J. Ornithol.* 154: 411–422.
Ramos, R., Granadeiro, J. P., Rodríguez, B., Navarro, J., Paiva, V. H., Bécares, J., Reyes-González, J. M., Fagundes, I., Ruiz, A., Arcos, P., González-Solís, J., & Catry, P. 2013. Meta-population feeding grounds of Cory's Shearwater in the subtropical Atlantic Ocean: implications for the definition of Marine Protected Areas based on tracking studies. *Diversity Distrib.* 19: 1284–1298.
Robb, M., Mullarney, K. M., & The Sound Approach. 2008. *Petrels Night & Day.* The Sound Approach, Dorset.
Robertson, G. J. 2002. Current status of the Manx Shearwater (*Puffinus puffinus*) colony on Middle Lawn Island, Newfoundland. *Northeastern Naturalist* 9: 317–324.
Ruiz, A., & Martí, R. (eds.) 2004. La Pardela Balear. SEO/BirdLife-Conselleria de Medi Ambient del Govern de les Illes Balears, Madrid.
Sangster, G., Knox, A. G., Helbig, A. J., & Parkin, D. T., 2002. Taxonomic recommendations for European birds. *Ibis* 144: 153–159.
Wink, M., Heidrich, P., & Ristow, D., 1993. Genetic evidence for speciation of the Manx Shearwater *Puffinus puffinus* and Mediterranean Shearwater *Puffinus yelkouan. Die Vogelvelt* 114: 226–232.
Wynn, R. B., & Yésou, P. 2007. The changing status of Balearic Shearwater in northwest European waters. *Brit. Birds* 100: 392–406.
Yésou, P. 1986. Mediterranean races of Manx Shearwaters in British waters. *Brit. Birds* 79: 354.
— & Paterson, A. M. 1999. Puffin yelkouan et Puffin des Baléares: une ou deux espèces? *Ornithos* 6: 20–31.
—, —, Mackrill, E. J., & Bourne, W. R. P. 1990. Plumage variation and identification of the 'Yelkouan Shearwater'. *Brit. Birds* 83: 299–319.

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Marcel Gil-Velasco has surveyed seabirds all around the coasts of the Iberian Peninsula and the Canaries. He is currently monitoring Macaronesian Shearwater populations in the Canary Islands. He lives in Catalonia, where he coordinates the Regional Rarities Committee. **Guillermo Rodríguez** has spent most of his life birding in Santander, but now lives in Barcelona. His main interests lie in the identification of raptors and seabirds, and he is currently a member of the Spanish Rarities Committee. **Stephen Menzie** has been watching birds since he was a toddler, starting with Blue Tits and sparrows in the family garden. According to his parents, by the age of two and a half he had learnt to separate male and female House Sparrows. His birding hasn't changed much in the intervening 25 years, but he occasionally partakes in some fair-weather seawatching. **José Manuel (Pep) Arcos** is coordinator of the Marine Programme at SEO, the Spanish partner of BirdLife International. His interest in seabirds stretches back almost 30 years; his PhD thesis assessed seabird-fishery interactions in the western Mediterranean and he has wide experience of seabird work, particularly in the Mediterranean.

The Carl Zeiss Award 2015

First introduced in December 1991 (*Brit. Birds* 84: 589), the Carl Zeiss Award has previously been awarded to the photograph or series of photographs that BBRC has judged to be the 'most helpful, interesting and/or instructive' during the processes of record assessment in the preceding year. Of course, 'helpful, interesting and/or instructive' are subjective terms and, when reviewing the hundreds of submissions we receive, trying to define and reach a consensus on these criteria often leads to in-depth discussions and debate. That debate helps the voting process, both of the records themselves and in terms of the candidates for this award. The winner has traditionally been chosen by combining the votes of individual Committee members, and there have been some memorable winners in recent years, including the Islay Ascension Frigatebird *Fregata aquila* in 2014 and the Co. Durham Eastern Crowned Warbler *Phylloscopus coronatus* in 2010 – and some memorable runners-up too, not least the Kent Tufted Puffin *Fratercula cirrhata*, also in 2010.

Since the last award, however, and as a result of meetings in November 2014 and at the BBRC AGM in March 2015, we have decided to give a slightly different and broader emphasis to the Carl Zeiss Award in the future. And so, beginning with the current award, and mindful that 2016 will mark the 25th anniversary of this very popular competition, we intend to present the award for the best overall submission of the year. Our hope is that this will encourage those birders lucky enough to find or identify something special to put that little bit of extra effort into their submission. This may well include an instructive series of digital images, but our award will not be limited to photographs. Sketches, paintings, detailed notes and sound recordings may all form a central part of a good submission, and we intend that from now on the award will reflect this.

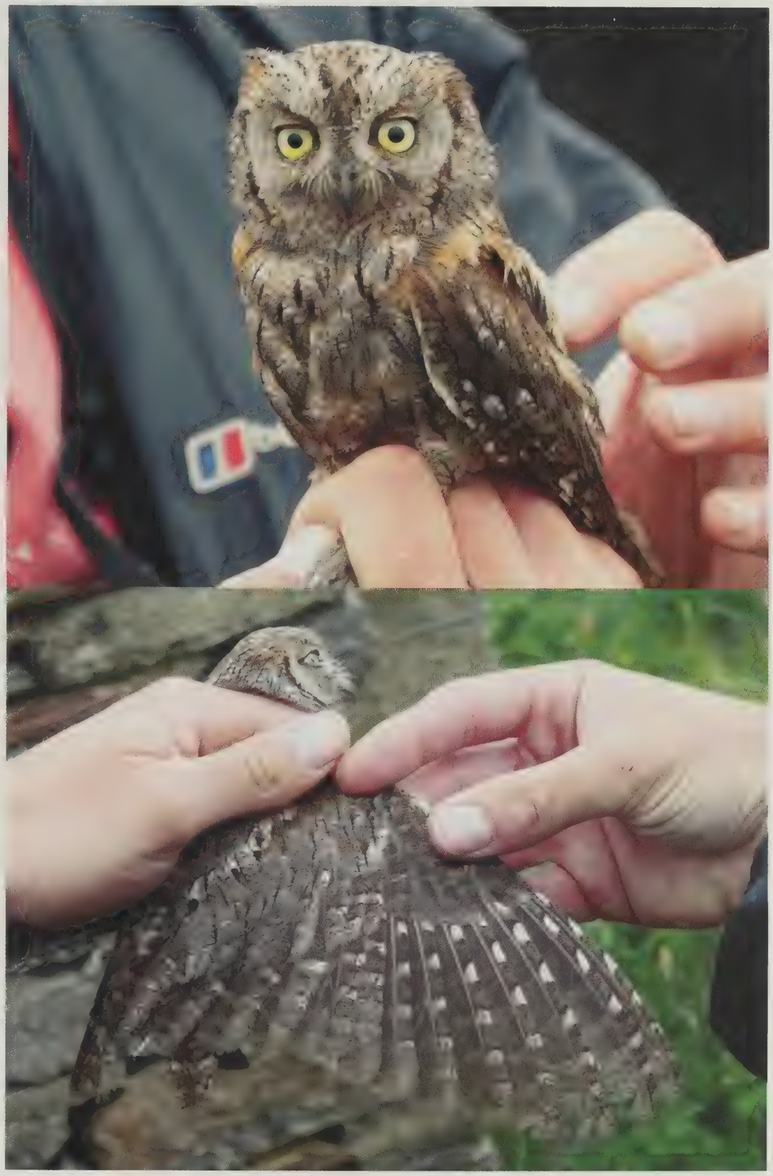
The shortlist for 2015 comprised six submissions. The top three are described and illustrated in more detail in a moment but, in no particular order, the three just missing out on a podium finish are as follows. The submission for the Eastern Bonelli's Warbler *Phylloscopus orientalis* at Scalloway, Shetland, in October 2014, featured accounts and descriptions by three observers (Howard Fearn, James Hanlon and Phil Harris), all of whom heard the diagnostic call. The photographs of the bird, notably those by Michael McKee and Rebecca Nason, would have been worthy winners of previous Carl Zeiss Awards, and the only thing missing from the submission was a recording of the call, which was not possible despite the best efforts of many observers.

Nick Whitehouse's submission of a Blyth's Reed Warbler *Acrocephalus dumetorum* at Spurn, Yorkshire, in June 2014, documents a great example of a bird heard, seen and identified in the field, with the incontrovertible back-up provided by in-the-hand details after the bird was trapped by members of the Spurn Bird Observatory. The in-hand description by Paul Collins was complete, describing the wing formula and complemented by a photograph showing this.

The record of the Isabelline Shrike *Lanius isabellinus* at Pendeen, Cornwall, in November 2014 was unfortunately not submitted by the finders, but Dave Parker did an excellent job in his role as county recorder, pulling together an extremely helpful and instructive series of photographs that depicted the shrike in different poses and in different lights. This may well prove to be an acceptable 'Turkestan Shrike' *L. i. phoenicuroides* in due course, due in no small part to the quality of Dave's submission.

In third place this year is Mark Warren's submission of a trapped Eurasian Scops Owl *Otus scops* on North Ronaldsay, Orkney, on 15th–16th June 2014. Most people would be tempted to simply photograph such a marvellous little bird and not think too much more about what would surely be a simple and straightforward submission. This, however, was not the case for Mark. He wanted to age the owl, but this proved difficult in the limited time available (not wishing to keep the bird in the hand unnecessarily). So he photographed the spread wing and set about trying to age the bird from the photos. It wasn't a simple task, but his thoughts and reasoning were clearly laid out in his submission and the committee appreciated the extra lengths he had gone to. We often find that there is rather little detail submitted by the ringers who handle rare birds, and in part this may be the result of the time pressure they are under (and the excitement/stress!), but this is a great example of what can be achieved with a bit of extra effort.

This year's runner-up is the submission by Ian Andrews and Marc Eden of a Booted Warbler *Iduna caligata* at Torness, Lothian, on 11th–23rd October 2014. As well as being the first for Lothian,



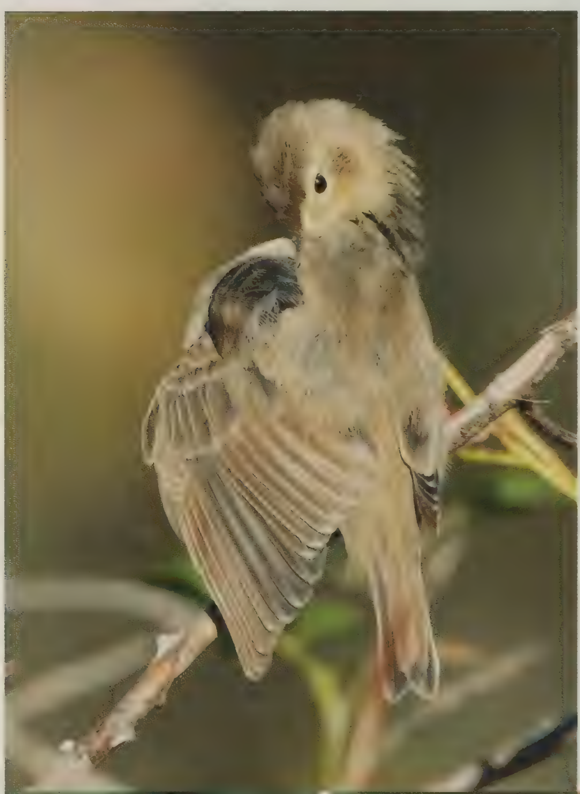
Alison Duncan

Alison Duncan

311. Eurasian Scops Owl *Otus scops*, North Ronaldsay, Orkney, in June 2014. Several features are visible that support Mark's assessment that this bird was a first-summer. Although not especially worn, the outer primaries are relatively pointed, while the pattern on the primaries also seems to fit a first-summer better, including the less obvious bars and markings on the inner webs, and an overall more random patterning. In adults the spots and marks are more uniform and consistent across the feather including at the tip. This pattern is visible on the secondaries as well, although they do appear to be quite rounded at the tips. There also appears to be a moult limit within both the greater and the median coverts, with the pattern of the outer four greater coverts being different from that on the inner feathers – although we cannot be sure that this reflects two generations of feathers. The two visible tail feathers appear to show a pattern matching that of first-summer Scops Owls in images found online. One potential problem is that a first-summer Scops Owl should have moulted some primaries/secondaries, yet there was no obvious moult limit in the flight feathers. Given the available evidence, BBRC chose to leave this bird unaged.

this individual showed an unfamiliar (at least in a British context) pattern of moult, with two generations of flight and tail feathers visible in the field. Illustrated by an excellent series of photographs, this bird was described in detail in the record submission to BBRC (and in Andrews & Eden 2015). The submission covered the moult and ageing in some detail, and they distilled opinion from various sources. They concluded that the bird was a moulting adult, although the views of various experts consulted were by no means unanimous. Nonetheless, the principle of using moult and feather condition to establish the age of a bird is an integral part of the identification of many more subtle species; the process has long been familiar to ringers, of course, and nowadays, when most birders have a decent camera, it is often possible to analyse these aspects without trapping the bird.

This year's winner is Martin Perrow's submission of an Isabelline Wheatear *Oenanthe isabellina* on Blakeney Point, Norfolk, on

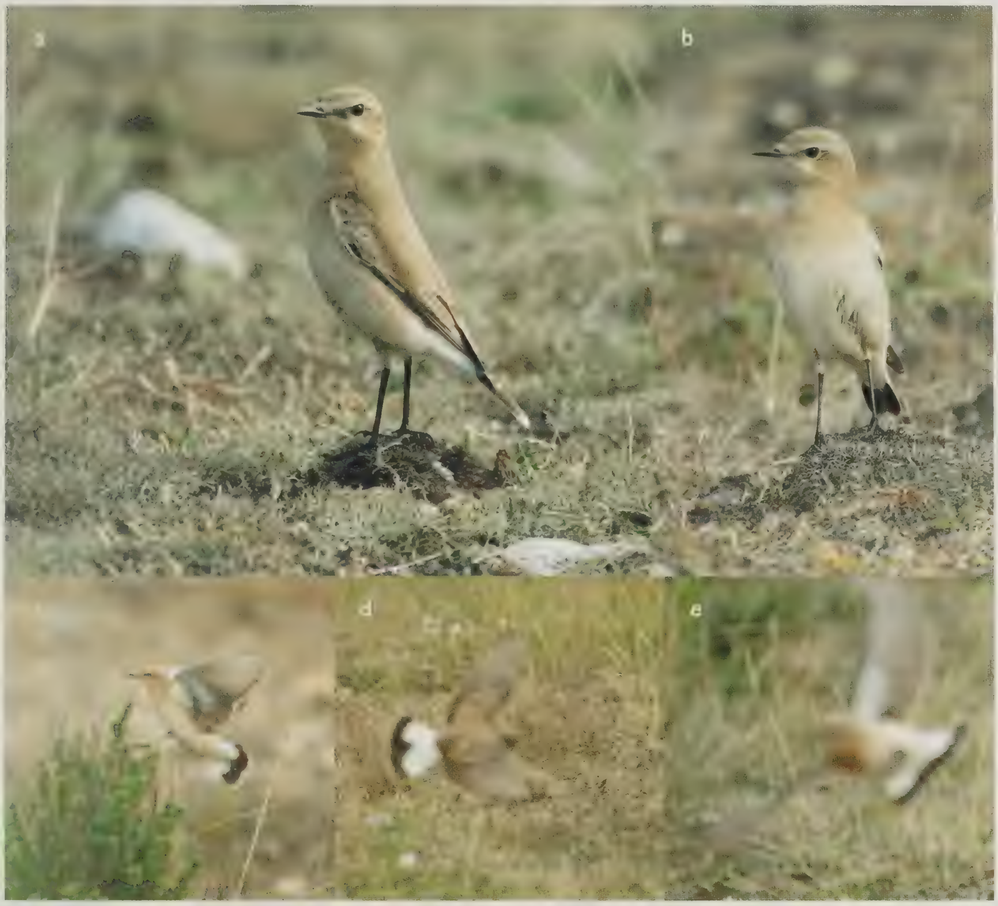


Peter Macdonald

312. Booted Warbler *Iduna caligata*, Torness, Lothian, 12th October 2014. The suspended moult within the primaries is very clear in this individual; the three innermost primaries are new feathers – blackish, glossy and unworn. The remaining primaries are from an earlier generation, being much paler, brownish and faded, with some wear evident at the tips. While there are various supporting characters that may inform the debate on ageing (including what appear to be fault bars in the tail, which is generally an indicator of a bird of the year), the key issue is how old the older feathers are. Are they juvenile feathers, and thus perhaps three months older than the newer ones; or were they replaced during a complete moult on the bird's wintering grounds, and thus perhaps ten months or so older than the new feathers? Booted Warblers with suspended moult are uncommon among vagrants in western Europe and generally cause much debate. Given the conflicting opinions received, we opted to leave this bird unaged.

Ian Andrews

Peter Macdonald



Martin Perrow

Martin Perrow

Martin Perrow

Martin Perrow

313. The Blakeney Point wheatear, Norfolk, September 2014. Note the largely white underwing-coverts. It is only in plate 313c that the grey bases to the greater underwing-coverts are visible; these are lost completely in the out-of-focus plate 313e. The apparently white underwing-coverts, coupled with plain whitish tarsal feathering and the overall sandy coloration and upright stance, made an identification in the field as Isabelline Wheatear *Oenanthe isabellina* entirely understandable. However, also visible in these images are the rather dark centres to the median coverts in plate 313a; the small bill and uniform supercilium, extending well beyond the eye in plate 313b; and the darker block of primary coverts and the rather narrow terminal tail band in plate 313d.

16th September 2014. This submission was notable in a number of ways. Firstly, although it was a single-observer record, it was supported by a host of photographs and detailed field notes. Secondly, the bird was actually an extremely difficult one to identify, and ultimately the Committee found the record not proven. It is probably fair to say that the quality of the submission was almost the reason the Committee was able to find it 'NP', since the range of photographs showed a combination of anomalous features, even though the overall impression was highly suggestive of Isabelline.

There are two features, shown in the images, which were particularly troubling for voters. Firstly, the underwing-coverts appear to be white; and secondly the tibial feathering was whitish and unmarked. These are both excellent features for Isabelline, and indeed white underwing-coverts are diagnostic. In assessing this record, we sought input from a variety of specialists outwith the Committee; in particular, the input from Killian Mullarney demonstrated that, in rare cases, first-winter Northern Wheatear *O. oenanthe* can show extensively pale underwings. However, in such cases they do still have grey bases to the greater coverts, and in the best of the images of the underwing of the Blakeney bird grey bases are indeed visible. Once the apparently diagnostic underwing was shown to be unsafe, it was easier to conclude that the rest of the plumage and structural features were also not diagnostic of Isabelline, and the record was found not proven on a second circulation.

Nonetheless, this documented record adds greatly to our knowledge of this potentially tricky species, and all voting members felt that they had learnt a great deal from Martin's hard work and careful approach. There is no doubt that this record will influence the way in which we look at future submissions of Isabelline Wheatear, and as a consequence Martin's submission is a worthy winner of this year's Carl Zeiss Award. It also, perhaps helpfully, reinforces the point that difficult identifications are rarely straightforward, but that when the submission quality is as high as it was in this case, the chances of arriving – eventually – at the correct outcome, and of learning more about the subject matter in the process, are high.

Martin was presented with his prize, a pair of the exceptional ZEISS Victory SF 10 × 42 binoculars, at the British Birdwatching Fair at Rutland Water in August. Further details will be posted on the BBRC website (www.bbrc.org.uk) in due course, where a selection of previous winning images can be viewed along with links to the previous competition write-ups in *BB*.

Acknowledgments

BBRC is grateful to all those observers who submit their records of rarities for consideration, either directly to the Committee or via our arrangement with websites (BirdGuides www.birdguides.com and Rare Bird Alert www.rarebirdalert.co.uk). We are extremely grateful to Carl Zeiss for their continued support of the Committee and this award; and also to Pete Clement, Andrea Corso, Ian Lewington, Killian Mullarney, Brian Small and Keith Vinicombe for their comments on the Blakeney Point wheatear.

Reference

Andrews, I. J., & Eden, M. 2015. Booted Warbler, Torness, 11–23 October 2014 – first record for Lothian. *Scottish Birds* 35: 78–81.

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BBRC
British Birds Rarities Committee

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Obituary

John Philip Busby (1928–2015)

For many, the name John Busby is synonymous with acute observations of nature and an enviable ability to capture character, light and movement in just a few simple lines and washes. His work was born from first-hand experience of nature and, as is the case with the very best artists, it encourages fresh ways of thinking and seeing.

John Busby was born in Bradford, Yorkshire, on 2nd February 1928, the son of Eric and Margaret Busby. He grew up in Menston, Lower Wharfedale, and from an early age it was clear that his interest lay in art, rather than 'Busby's of Bradford' – the family-run department store. His family were supportive of his interests, however, and after attending Ilkley Grammar School he went on to study at Leeds University and then Edinburgh College of Art. At the end of his studies, which included a postgraduate travelling scholarship, John was offered a post teaching drawing and painting at Edinburgh College of Art in 1956, where he taught until his retirement in 1988. John was a natural teacher, full of enthusiasm, keen to pass on knowledge and with a remarkable ability to motivate and inspire.

John was a past president of the Society of Scottish Artists, a member of the Royal Scottish Society of Painters in Watercolour and of the Royal Scottish Academy. He was a founder member of the Society of Wildlife Artists and a key member of the Artists for Nature Foundation. In 2009 he was declared Master Wildlife Artist by the Leigh Yawkey Woodson Art Museum, in Wisconsin, USA.

Like many others I first encountered John's work in the RSPB's *Birds* magazine in a series of articles titled 'How to draw birds'. The concise, richly illustrated articles came as a revelation to many who had attempted to capture on paper the lively spirit of birds, and a much enlarged version of those articles was published in book form in 1986. The ethos of *Drawing Birds*, which became hugely influential, was drawing from life. Suddenly anatomy was as important as feather detail; indeed, feathers were seldom isolated, instead logically grouped in tracts and the shapes those feather masses formed were skilfully rendered by a quick line or wash. The importance of understanding anatomy was again stressed if a bird's movement or balance was to be conveyed convincingly. Once the basics were grasped, John would delight in continually adding something new to the mix. In bright sunlight readers were encouraged to record the shadow first, since he insisted that the shadow was likely to change or disappear before the bird! Another chapter dealt with flight – flight was an area where he truly excelled and few artists are able to match the impression of buoyancy and movement that are found in Busby's flying birds.

John talked about bird flight with incredible passion and as he spoke it was wonderful to watch him imagining how it must feel being a Gannet hanging in an updraught – subconsciously outstretching his arms and controlling the airflow by adjusting the position of his hands and elbows, even making fine adjustments by using his thumbs as alulas.

But there was much more to his art than the more familiar bird work. John was passionate about landscape and many of his

Hal Skjelstad

314. John Busby at the Bass Rock, Lothian, in July 2005.

larger oil landscapes, frequently seen from a bird's-eye view, show strong geometry and are at times enshrouded with subtle symbolism. He was also fascinated by the 'miniature landscapes' of rock crystals and rock pools – a fine cross section of his work can be found in *Land Marks & Sea Wings*, published in 2005. He illustrated over 30 books including *Birds in Mallorca* (1988) and *Nature Drawings* (1993).

Seabirds, including of course his beloved Northern Gannet *Morus bassanus*, were a great love of John's. Some of my favourite examples of his work are the seabird drawings he made between the late 1970s and the mid 1990s. During this period he worked on many projects with seabird biologist Bryan Nelson, who sadly passed away a month after John. The acute observation and exquisite use of line in many of the drawings and paintings of this period I find breathtaking; the marriage of art and biology is inspiring. I believe some of the seabird compositions from this period of John's career to be among the finest examples of bird art ever made.

Every year from 1988 John ran a Seabird Drawing Course based on the beautiful coastline and islands of the Firth of Forth. I attended my first course in 1991 as a young, wide-eyed art student and, in common with many participants, the week-long course completely changed forever the way I was to watch, draw and paint nature. This was my first meeting with John and I was instantly struck by his gentle and generous nature and, increasingly as the days progressed, by his great (at times wildly eccentric) sense of humour. John's good friend, the late David Measures, had just joined as a course leader and the dynamic worked very well resulting in a memorable week of incredible energy and humour. Other young students on that early course who had come under Busby's spell included Kim Atkinson, David Bennet, Greg Poole and John Walters. Greg would go on to assist John with the course, later to be aided by other great admirers of John's work – John Threlfall and Darren Woodhead.

At John's funeral in Musselburgh the readings by his family and friends spoke lovingly of a passionate man with a strong Christian faith and a great love of classical music and song. Indeed this love of music led to John meeting his wife, Joan, an accomplished singer, and they were married in 1959. John was devoted to his family and he and Joan had three children – Philip, Rachel and Sarah – and nine grandchildren.

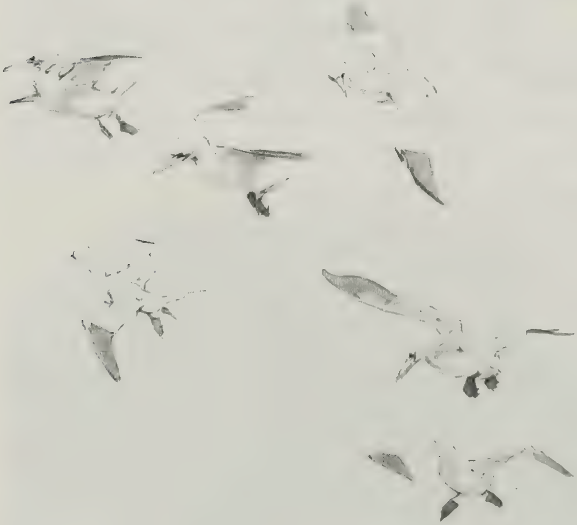


Fig. 1. Northern Gannets *Morus bassanus* hanging in an updraught over the Bass Rock; drawing by John Busby. The essence of the bird and a feeling of buoyancy have been captured quickly using minimal lines and washes. The result can appear deceptively effortless, yet this distillation requires great skill and knowledge and reveals the work of a true master.

'Drawing is a way of learning to see. Draw anything and you will know it far better than before, even if the drawing is not up to much. You also begin to realise that your eyes are giving you contrary information all the time. What you see after three minutes' drawing will be quite different from your immediate impressions, and from your understanding half an hour later, when your eyes have travelled over, through, and around the object of your drawing many times. Drawing is like the unravelling of a mystery – a search for the true nature and meaning of an object.'
[*Drawing Birds* 1986]

James McCallum

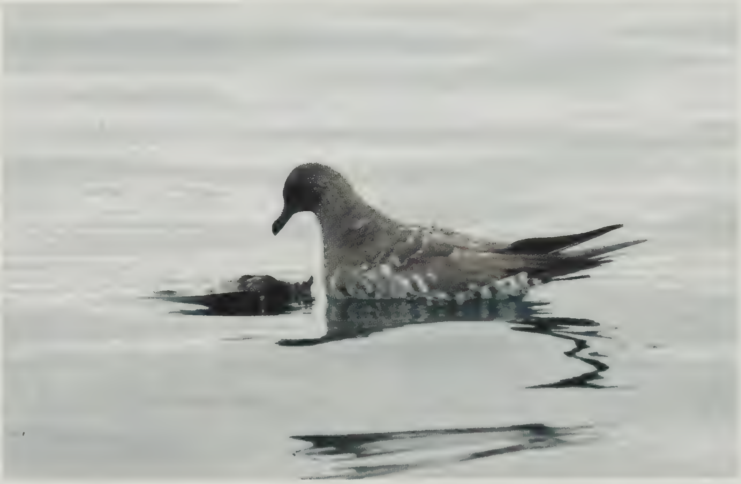
Footnote: A retrospective exhibition will be held at Nature in Art, Wallsworth Hall, Twigworth, Gloucester, from 4th August to 6th September 2015, while a new book of John Busby's work, *Lines in Nature*, is due to be published later this year.

Notes

Long-tailed Skua predation of Wilson's Storm-petrel

In November 2014, we undertook a three-week, yacht-based expedition from central Chile to the Juan Fernández archipelago. On 17th November, we were cruising slowly northwards in the Humboldt Current, about 70 km WNW of Papudo, Chile. There was little breeze and the sea was calm. Wilson's Storm-petrels *Oceanites oceanicus* were common with about 250 seen during the course of the day, some foraging and feeding, others rafting in groups. At about 09.30 hrs we observed a Wilson's Storm-petrel foot-pattering and feeding near to the yacht. A first-summer Long-tailed Skua *Stercorarius longicaudus* flew towards the petrel, approaching it from behind and about 1.5 m above the sea surface, and then dived onto it, apparently killing it instantly. The dead storm-petrel floated on its back and the skua proceeded to eat its prey, beginning by plucking feathers from the belly area (plate 315).

Adult Long-tailed Skuas are rodent specialists at the breeding grounds. Typical hunting behaviour might involve hovering some 15–50 m above ground, before diving onto a rodent and pecking it to death (*BWP*; Malling Olsen & Larsson 1997). They also take smaller prey including passerines and insects. At sea, outside the breeding season, they feed through a mix of kleptoparasitism, surface-seizing and aerial dip-feeding (probably small fish, crustaceans and squid), and scavenging, including taking offal from behind fishing vessels (Malling Olsen & Larsson 1997; Haven & Lee 1998; Hockey *et al.* 2005). Kleptoparasitism of a wide variety of other seabirds has been observed and includes robbing Wilson's Storm-petrels (Brady 1994). However, we can find no reference to Long-tailed Skuas killing a Wilson's Storm-petrel, although the petrel is predated by the large southern skuas at their breeding grounds.



Michael Danzenbaker

315. First-summer Long-tailed Skua *Stercorarius longicaudus* and its Wilson's Storm-petrel *Oceanites oceanicus* prey, off Chile, November 2014.

Acknowledgments

Many thanks to Didier and Sophie Wattrelot for first-class services on their yacht *Sauvage*.

References

Brady, A. 1994. Kleptoparasitism of Long-tailed Jaeger on Wilson's Storm-petrel. *Cassinia* 65: 19–20.

Haven, W. R., & Lee, D. S. 1998. Long-tailed Jaeger (*Stercorarius longicaudus*). In: Poole, A. (ed.), *The Birds of North America Online*. Cornell Lab. of Ornithology, Ithaca.

Hockey, P. A. R., Dean, W. J. R., & Ryan, P. G. 2005. *Roberts – Birds of Southern Africa.* The Trustees of John Voelcker Bird Book Fund, Cape Town.

Malling Olsen, K., & Larsson, H. 1997. *Skuas and Jaegers: a guide to skuas and jaegers of the world.* Pica Press, East Sussex.

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Letters

Willow Tit caching behaviour

I was interested to read the recent papers on Willow *Poecile montana* and Marsh Tits *P. palustris* in the January 2015 issue of *BB*. The Yorkshire Wildlife Trust reserve of Potteric Carr, near Doncaster, has long been a reliable site to see Willow Tits but, in line with national trends, they have declined there. The feeding station is the easiest place to see them at the reserve, where they prefer landing on a flat table rather than using hanging feeders. Willow Tits appear subdominant to the more common Great *Parus major*, Blue *Cyanistes caeruleus* and Coal Tits *Periparus ater*, and their feeding behaviour is noticeably different – Willow Tits spend much less time around the feeders, preferring a 'quick dash and grab' strategy, then often caching the food item nearby rather than consuming it in the vicinity of the feeder, as the other tit species do.

Observations on 16th January 2015 revealed some interesting caching behaviour. Having taken a food item (typically a sunflower seed), the Willow Tits would cache it in a variety of different places. All those observed were less than 2 m high and most were less than 1 m high. Predictably, some items were wedged in cracks in the bark of nearby willows *Salix*, but the birds used mostly thin, dead plant stems within 1 m of the ground. The plant species selected, such as Common Nettle *Urtica dioica*, revealed a hollow stem when broken. The Willow Tits would open up the tip of the broken stem before inserting the seed into it; they also took advantage of splits along the stem, which they could widen before pushing a seed in. Interestingly, the birds never used the stems of dead Common Reed *Phragmites australis*, which were present nearby, of similar size and appeared to offer similar potential.

At least in the Midlands, and south and west Yorkshire, a large proportion of Willow Tits occur in a variety of habitats close to human habitation. In all of these, supplementary food provision is common; in fact it occurs at an almost industrial scale at some. I wonder whether the caching behaviour of Willow Tits could be a contributory factor in their decline: for example, does a concentration of other species attracted to feeders (including mammals such as rats and squirrels) mean there is a greater chance that seeds cached in the vicinity of feeding stations will be 'stolen'? Is the explosion of bird feeding stations (inadvertently) having a negative impact on the Willow Tit, at least in some areas? Some experiments on the fortunes of Willow Tits in similar areas with and without feeding stations might prove interesting.

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Grasshopper Warbler sunning

In the recent Bird Photograph of the Year award, the judges asked for comments on the unusual behaviour of a Grasshopper Warbler *Locustella naevia* (*Brit. Birds* 108: 484). An explanation is to be found in K. E. L. Simmons' book *The Sunning Behaviour of Birds* (1986, Bristol). He preferred the term 'sunning' rather than 'sunbathing', which is misleading since birds tend to bathe in water. In summary, this Grasshopper Warbler is adopting the commonly recorded form of this behaviour known as 'lateral sunning'. It has its right wing and right half of its tail spread – which are obviously facing the sun – with the feathers of the right flank, neck and head all ruffled. These areas are exposed to get the maximum heat from the sun, thus performing, perhaps, a form of temperature control. Since many sunning birds preen their plumage before and/or after sunning, it may also affect the preen oil on the feathers in some way to provide a source of vitamin D absorbed during the actions of preening; alternatively the warmth of the sun may activate ectoparasites to make them more accessible to the preening bird.

Robin Prytherch, 23 Caledonia Place, Clifton, Bristol BS8 4DL

Rarities Committee news

Rare subspecies

BBRC has for some time adopted the concept of 'informal submissions' for rare subspecies, whereby any claim found 'not proven' would not be published in the annual report. This was introduced to encourage observers to submit claims for difficult taxa, but also in acknowledgment of the fact that the identification and taxonomic issues surrounding some subspecies can be complex and that further research is required in many cases. While this approach has led to a number of accepted records, others (perhaps inevitably) have simply ground to a halt in the system. Some of these are promising but cannot be accepted confidently, while others are considered not to relate to the subspecies claimed; yet under the current policy they cannot be published as 'not proven'.

This situation is unsatisfactory and so future annual reports will contain a new Appendix: 'Records held until taxonomy or identification criteria are resolved'. This will list those claims which look highly promising but, through no fault of the observer(s), cannot be progressed further on current knowledge. This Appendix is intended to highlight such claims, and to encourage further research into the taxa; in some cases, new research will lead to a claim being revisited and accepted.

The new Appendix will relate largely to those subspecies for which (i) the taxonomy is not yet settled and/or (ii) robust field identification criteria have yet to be developed. In many cases, identification may ultimately depend on evidence other than field observation, such as biometrics, a ringing recovery or DNA evidence, but in some cases ongoing research may result in the definition of field characters too. The Appendix is likely to be particularly relevant for claims of 'firsts', where the acceptance threshold is inevitably higher.

For claims to be published in this section, the evidence supplied should be comprehensive, fully indicative of the claimed identification *and contain nothing to suggest otherwise.* Claims which are poorly documented or considered not to relate to the subspecies claimed will henceforth be published as 'not proven'. Observers' names will not be published, and the 'informal' submission procedure will cease from 1st January 2015.

A more detailed article, which will appear in *BB* sometime later this year, will highlight the evidence that BBRC will be looking for in claims of each rare subspecies. Fuller details of some submissions will be published in *BB* and/or on the BBRC website under the 'From the Rarities Committee's files' banner.

New member of BBRC

Since there were no other nominations, we are pleased to announce that Dave Fairhurst has been confirmed as a permanent member of BBRC, replacing Martin Garner (see *Brit. Birds* 108: 287–288).

British Birds Rarities Committee

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Voting members Chris Batty, Chris Bradshaw, David Fairhurst, Paul French, Nic Hallam, Micky Maher, Richard Millington, Mike Pennington, Richard Schofield, Steve Votier
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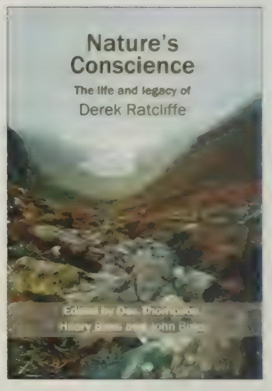
Museum Consultant Brian Small • **Summariser** Reg Thorpe

Reviews

Nature's Conscience: the life and legacy of Derek Ratcliffe

Edited by Des Thompson, Hilary Birks and John Birks
Langford Press, 2015
Hbk, 571pp; numerous colour photos
ISBN 978-1-904078-60-0, **£30.00**



Derek Ratcliffe retired after 15 years as the Nature Conservancy Council's (NCC) Chief Scientist on 8th July 1989. Just three days later, Nicholas Ridley, then Secretary of State for the Environment, announced that the NCC was to be split up into four separate agencies. A year later, in 1990, I joined the organisation as a seabird surveyor, blissfully unaware of all the upset, though I can still remember the heated discussions among colleagues over the causes and likely repercussions of 'the break-up'. Several chapters in this book were written by people who worked closely with Derek Ratcliffe in the run-up to that turbulent period, either within the NCC or as conservation 'collaborators' in one of the main NGOs. Their accounts provide a heady mix of nostalgia and lessons, still relevant today, for anyone interested in the mechanics and politics of conservation.

Despite rising to such a senior position, Derek Ratcliffe seemed to be most content when spending long hours out in the field. His interests spanned the full range of wildlife, from ferns and liverworts tucked away in rock crevices, to scarce raptors and waders nesting on the same rocky outcrops or adjacent bogs and moors. If there is a common theme to such diverse interests, it is the wild, rugged nature of his favoured landscapes and the satisfaction to be had from searching out their less familiar inhabitants. In contrast, it seems he did not greatly enjoy the boardroom, particularly when up against powerful vested interests keen to manipulate the facts to their own ends. In this biography, the accounts of his pivotal role in revealing the effects of organochlorine pesticides on birds of prey (Ian Newton), and battles over the afforestation of peatlands (David Stroud and others) show how evidence, painstakingly collected in the field, is (although vital for the cause) merely a starting point. Derek Ratcliffe's lesser-known work in the 1970s, on the monumental Nature Conservation Review, is well described by Des Thompson and others. He devised innovative criteria for selecting the most important sites for wildlife and set out a convincing rationale for their protection. The results, brought together in two inspiring volumes, have influenced the conservation of protected sites ever since, both here in Britain and further afield.

While Derek Ratcliffe may not have excelled as an advocate for nature conservation in the office meeting room or conference hall, he came into his own when putting his thoughts down on paper. Each section of the book is rounded off with a reprinted example of his work and these serve to illustrate his great talent as a writer, as well as his breadth of expertise. There are lucid accounts of mountain flora, the conservation of upland birds, reminiscences from his introduction to *The Peregrine Falcon*, and a more esoteric, though impeccably argued, paper on the philosophy of nature conservation. One wonders just how the editors decided which of his many publications to pick from. They could, equally, have chosen something from his monograph on *The Raven*, either of his two books in the New Naturalist series (*Lakeland* and *Galloway and the Borders*), or from his memoir *In Search of Nature*, all of which were written in the later years of his life. Indeed, much of the legacy referred to in the book's title is in the extensive written record he has left behind. I particularly enjoyed Peter Marren's beautifully crafted, honest and poignant account of his relationship with Ratcliffe, sustained largely through correspondence about their respective book projects over a period of 20 years.

Several of the contributors who knew him best mention that, in later life, he became rather dispirited and even bitter when contemplating the state of nature conservation in Britain. It says a lot that despite his obvious affection for the British uplands he took to making annual visits to Lapland every summer to get his fix of healthy upland landscapes

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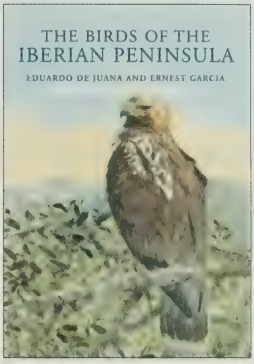
and their special wildlife. As he pointed out himself: 'probably they are a form of escapism, when I leave the awful problems of UK conservation behind...'. Those trips spawned yet another excellent book and a selection of his photographs from the far north is reproduced in *Nature's Conscience*, showcasing yet another of his talents.

This book is well organised and richly illustrated throughout. The editors have done a fine job in drawing together the varied contributions from many different authors into a coherent whole. It will have wide appeal to anyone interested in nature conservation in Britain and is a fitting tribute to one of the most outstanding field biologists, conservationists and natural history writers of recent times.

Ian Carter

The Birds of the Iberian Peninsula

By Eduardo de Juana and Ernest Garcia
Christopher Helm/Bloomsbury, 2015
Hbk, 688pp; 64 colour photographs, 216 black-and-white illustrations
ISBN 978-1-4081-2480-2, **£60.00**



Despite the popularity of Spain as a holiday destination, travelling birders have struggled to find a book that accurately describes the status of birds in that country. Although there are various site and regional guides, while *Birds of the Strait of Gibraltar* (1992) covered Gibraltar and the Spanish province of Andalucia, the two volumes of *Aves Ibéricas* (1996–99) have provided the most useful source for detail of bird distributions throughout the rest of the Iberian Peninsula. However, that was published in Spanish and before much of the recent groundbreaking atlas work had been undertaken. Portugal has been better served: *Aves de Portugal, Ornitologia do Território Continental*, published in Portuguese in 2010, is an excellent account of that country's avifauna.

But now, after a long gestation period, we have this impressive new tome, in English, by Ernest Garcia (well known for his expertise on Gibraltar and Andalucia) and Eduardo de Juana, whose field guide *Guía de las Aves de España* (Lynx Edicions, 2005) has made him a household name in Spain. The book covers mainland Spain and Portugal, plus the Balearic Islands, Berlengas archipelago, Andorra and Gibraltar, but not the more distant Atlantic island groups of the Azores, Madeira and the Canaries.

The introductory chapters provide a very good overview of the region and what it has to offer both birds and birdwatchers. The geography, climates and habitats are all described – and many are illustrated in the 64 excellent colour photographs that are grouped together. The species accounts are thorough, some up to 2,000 words in length, although they could have benefited from a more obvious layout and use of subheadings. In addition, the authors have been rather inconsistent in their descriptions of status. For example, the Whooper Swan *Cygnus cygnus* 'occurs sporadically' but the text reveals that there are only 19 records of 56 birds from 1939 to 2007; yet White-fronted Goose *Anser albifrons*, with 142 records, is 'a rare visitor', while Barnacle Goose *Branta leucopsis*, with 132 records, is 'a scarce visitor'. For some rarer visitors, maps show the number of records per region, which is a useful idea, while for other species, such as Ferruginous Duck *Aythya nyroca*, the data are tabulated. There are also 216 bar charts showing seasonal or monthly occurrences, but for many the data are presented only up to 2010.

Given that, to some degree, we have lacked detailed information on the status of Iberia's birds, it is good that population estimates are given for many species, and based on several recent sources, although these are sometimes conflicting (and the estimate of 1.1 million Black-eared Wheatears *Oenanthe hispanica* in Andorra is clearly an error, being also the number found in Portugal). Inexplicably, estimates are not provided for non-passerines, although figures are available from the recent atlases.

For most species, maps show distributions and population density using a varying grey scale, and these work well. However, again there is a lack of consistency in the way the maps have been used. For some resident species one map is provided, for others two maps differentiate between summer and winter distributions, while for some species there are no maps at all. This is perhaps understandable for widespread common species, but

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why no map for Glossy Ibis *Plegadis falcinellus* – which is expanding its range and is present in all months in differing areas? Similarly, why no summer map for Great White Egret *Ardea alba*? And why show Peregrine Falcon *Falco peregrinus* distribution for summer but not winter? There are similar cases throughout the book where maps have not been included where they would have added value. Perhaps they were excluded to save space?

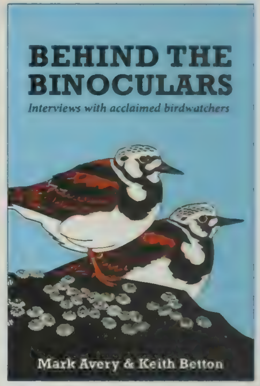
The appendices cover a variety of aspects such as escaped species and conservation status, and for those wanting to delve further around 2,000 references are included.

There is no doubt that a huge amount of effort has gone into this book and while I have been critical of some inconsistencies there is also no doubt that it is a tremendous improvement on what is currently available. Perhaps some of the inconsistencies are the result of that lengthy gestation period. Despite cutting back the text and reducing the typeface size to allow about 900 words on each page, the publishers have still ended up with a book that weighs in at a hefty 1.9 kg! This is an impressive book in many ways and deserves to be on the bookshelf of every travelling birder in Europe.

Keith Betton

Behind the Binoculars

By Mark Avery and Keith Betton
Pelagic Publishing, 2015
Hbk, 252pp; 18pp of colour and black-and-white photographs
ISBN 978-1-78427-050-6, £16.99


BEHIND THE BINOCULARS
Interviews with acclaimed birdwatchers
Mark Avery & Keith Betton

Behind the Binoculars is a print version of *Desert Island Discs* with a very specific category of castaway. Subtitled *Interviews with acclaimed birdwatchers*, this book is just that: a series of Q&As with a familiar roll call of Birdfair stalwarts – plus a few individuals who probably aren't Rutland regulars.

The 20 interviewees range from celebrity birders to eminent ornithologists. There are scientists (Ian Newton, Stephanie Tyler, Debbie Pain), administrators (Mike Clarke, Andy Clements), writers (Mark Cocker, Stephen Moss), listers (Steve Gantlett, Lee Evans), a photographer (Rebecca Nason), an artist (Robert Gillmor) and the late, great Phil Hollom. The co-authors also interview each other!

The interviews range over the subject's introduction to birds and birdwatching (usually when very young), their first bird books and binoculars, their career, their special interests, their favourite music, films and books – and, yes, only one bird book is permitted on the notional desert island.

The first interviewee is Chris Packham and we do indeed revisit his *Desert Island Discs* with the story of a teenage Chris and the Common Kestrel *Falco tinnunculus* he (illegally) took from a nest, and which became his constant companion. The subsequent story of his academic studies, his camera work and how he became one of the nation's favourite wildlife broadcasters makes very interesting reading.

Stephanie Tyler initially did research on the social behaviour of New Forest ponies before starting her long-term studies of Dippers *Cinclus cinclus*. And she gives a matter-of-fact account of her family's kidnap in Ethiopia in 1976 – and subsequent eight months as hostages. (When they were released, her husband sold the exclusive rights to their story to the *Daily Mail*, which provided them with the money to buy their cottage in Wales.)

Ian Newton's rigorous research has made him one of our most respected scientists with an unrivalled knowledge of finches and the Eurasian Sparrowhawk *Accipiter nisus*. His informed analysis of the conflict between grouse shooting interests and the Hen Harrier *Circus cyaneus* is dispassionate and depressing. Not only the evident illegal persecution of breeding birds on the moors, but also the systematic targeting of birds at their winter roosts.

Robert Gillmor, whose bold prints have been an ever-present backdrop to British birding for nearly 60 years on book jackets, stamps, calendars and Birdfair posters, is disarmingly modest. (A characteristically striking study of Turnstones *Arenaria interpres* adorns the cover of this book.) Our foremost bird artist and founder of the Society of Wildlife Artists in 1960, he concludes: 'I have been extremely fortunate. I've met lots of wonderful people and been to some marvellous places. And I'm not sure what else I could have done!'

For many of the people within these pages, birds

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are indeed 'the only thing they could have done'. There is a common thread of youthful enthusiasm for wildlife that is nurtured by an inspirational teacher or bird group leader – and fired by early exposure to *The Observer's Book of Birds* and/or *The AA Reader's Digest Book of British Birds.*

All the contributors appear in the photographic section in the centre of the book, often with a youthful version alongside their older self. There's a great black-and-white image of Ian Wallace releasing a Leach's Storm-petrel *Oceanodroma leucorhoa* on St Kilda in 1956, a moody teenage Chris Packham in 1980 and our very own Roger Riddington on Shetland in 1992.

There are many fascinating tales in this collection of birders' biographies, some of which have passed into birding folklore. But the book could have been better edited. Some of the entries appear to have been transcribed verbatim and read like extended curricula vitae. This has allowed the occasional error to creep in, for example Lee Evans's desire to see Japan's 'twelve overwintering species of crane…' (p. 36) when six is the maximum one could hope to see.

The authors speculate on how good the support is for young birders nowadays. And we do live in an age of heightened child protection where children are discouraged from venturing into the countryside unaccompanied – and where adults have to be vetted before they can provide the companionship that so many of today's birders benefited from in their youth. However, in a connected world where social media informs much of young people's lives there are now new opportunities for young birders to develop their skills and enthusiasm. It would be good to see that new generation of birders profiled in an updated version of this book in 20 years' time.

Adrian Pitches

Collins BTO Guide to British Birds

By Paul Sterry and Paul Stancliffe
Collins, 2015. Pbk
320pp; numerous colour photographs
Hbk, ISBN 978-0-00-755151-4 **Wild Sounds price £19.99,** quote BB059
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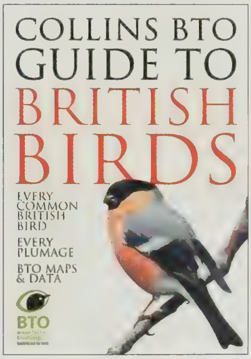
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This is quite a departure for the BTO. Not only is it the organisation's first foray into field guide publication, but it has also opted to produce a field guide that uses photos rather than plates.

The *Collins BTO Guide to British Birds* illustrates all of the regular breeding birds, wintering species and passage migrants that occur in Britain and Ireland and is primarily designed for the beginner birdwatcher. (Its companion volume, the *Collins BTO Guide to Rare British Birds*, launched at the Birdfair, covers every other species that has occurred five times or more up to February 2015.)

What sets it apart from other field guides (apart from the *Crossley ID Guide*) is how the birds are depicted (by an excellent selection of 1,200 photos and computer-generated images, largely taken/created by Paul Sterry) and also the innovative use of BTO *Atlas* and BirdTrack data to illustrate distribution/abundance and the likelihood of seeing a species in its regular haunts.

After a commendably succinct one-page preface, the reader is then introduced to the BTO, bird observatories, ringing and a brief explanation of the value his/her sightings can have in the context of BTO surveys and census work. 'Where and when to see birds' explains the map and 'calendar wheel' that appears with every species account. The latest *Atlas* maps have been distilled to present summer/winter/resident distribution and abundance on just one, rather small, map. But the 'calendar wheels' are a novel addition to the British field guide genre. The 12-slice pie charts show which months of the year one can expect to see a particular species in the areas where it occurs and each chart also has a score. So, for example, the Common Nightingale *Luscinia megarhynchos* scores 16, which means there's a 16% chance of seeing a Nightingale in its core breeding areas in summer, according to observer returns to BirdTrack – or rather it's recorded on 16% of visits to those areas. This is a very useful tool for the novice birder who isn't sure how likely it is that he/she will see – or hear – a Nightingale while birding in southeast England in May. 'Identification aids' has five pages of bird topography (that don't shy away from greater coverts and malar stripes) and is followed by nine pages of 'Default birds'. This selection of birds we all subconsciously use as yardsticks when identifying an unfamiliar species is a very

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good idea: for example, default gulls (Black-headed *Chroicocephalus ridibundus* and Herring *Larus argentatus*), default raptors (Eurasian Sparrowhawk *Accipiter nisus*, Common Buzzard *Buteo buteo* and Common Kestrel *Falco tinnunculus*) and default waders (Dunlin *Calidris alpina* and Eurasian Curlew *Numenius arquata*).

After brief introductions to 'Behaviour and Jizz', 'Voice and Song', 'Birds and Weather', 'Bird Migration' and 'Habitats for Birds' (what you're likely to find and where), we reach the 248 species accounts. Each species has a single page with concise text and a range of photos of the bird at rest and in flight, with summer and winter plumages where relevant. Adult and juvenile are both illustrated where appropriate. Supplementary double-page photo spreads that depict winter wildfowl in flight (on estuaries *and* on fresh water), waders, raptors, warblers and ageing in gulls are all very instructive.

A lot of thought has gone into the design of this field guide with a lot of information, both textual and visual, shoehorned into every page. If I have a criticism, it's that there is perhaps *too* much crammed into some of these single-species, single-page accounts – some of the flight shots of gulls are pretty tightly packed, for example. The photographs, many of which are previously unpublished, are well chosen, highlighting key identification features. But the fact that they are often 'cut out' against a white background lessens their aesthetic appeal. And there's the dilemma for the field guide buyer – photos or plates?

That other Collins guide, *The Collins Bird Guide* (Svensson *et al.*), has plates that are probably unsurpassable (with great aesthetic appeal) and incredibly detailed text. But is it a field guide for the beginner birdwatcher? Probably not. Whereas the *Collins BTO Guide to British Birds* most certainly is. And not just beginners. There is plenty of useful information in this guide for birders of all abilities, not least the innovative depiction of distribution/abundance and likelihood of encountering any given species on any day of the year. If I was asked to recommend a field guide for someone new to birding, this would be it. And I would hope it set them on the path to enjoyable and productive bird data collection too, as I'm sure the BTO intended.

Adrian Pitches

Birds in Counties: Third Supplement

By David K. Ballance

Privately published by the author, 2015
Pbk, 145pp; no illustrations. ISBN 978-0-9552787-8-5, **£20.00**
Available from the author at Flat 2, Dunboyne, Bratton Lane, Minehead, Somerset TA24 8SQ

Birds in Counties was published in 2000 and gave details of the ornithological literature of every county in England, Wales, Scotland and the Isle of Man, but not Ireland. First and second supplements appeared in 2001 and 2009, and contained corrections and updates, including some information on Ireland.

This third (and final) supplement adds yet more references published up to November 2014, and includes many amendments to information in the previous supplements. Just 100 signed copies of this final supplement are available and, as might be expected from the previous works, it is meticulous in its detail. The author has taken great care to include as much information as possible about each reference, with the result that abbreviations have been used rather extensively.

An interesting and useful element of this supplement is a 42-page alphabetical index to the 5,300 authors whose works are covered in the original volume and the supplements. This enables rapid checking of sources, but also reveals that the author catalogues only papers and publications that report on all of the birds of an area – whether a small wood or the entire county. So you will not find references to papers on the status of a single species or family, although (as in the main book) exceptions have again been made for waders and wildfowl – which are included.

Those wanting to buy a copy of the original book and the first supplement can obtain these for £25.00 and £15.00 respectively (from Isabelline Books, 6 Bellevue, Enys, Penryan, Cornwall TR10 9LB). The second supplement is now out of print, but the author is willing to copy specific references for a small charge.

Since David Ballance has firmly stated that he is not publishing further updates, the challenge is there for someone to carry on this work. Ideally such an effort should be made available online, and perhaps include papers on all aspects of county and local ornithology.

Keith Betton

WILD sounds & books

Recent reports

Compiled by Barry Nightingale and Harry Hussey

This summary of unchecked reports covers early July to early August 2015.

Headlines After a couple of exciting months this was a quieter period, with just a few new rarities arriving. Among the highlights, a short-staying Hudsonian Godwit was the first for Ireland, seabirds included a Macaronesian Shearwater off Cornwall and several sightings of Fea's-type petrels off Ireland, an influx of around six Black Storks and a Least Sandpiper on Scilly. Rare passerines included a Paddyfield Warbler in Shetland and a Black-headed Bunting in Cornwall. Following the influx of European Bee-eaters, two pairs bred in Cumbria, but the most unusual record, perhaps of the year so far, was a Black-browed Albatross at Minsmere.

Lesser Scaup ***Aythya affinis*** Blagdon Lake (Avon), long-stayer to 6th August. **King Eider** ***Somateria spectabilis*** Nairn (Moray & Nairn), long-stayer to 31st July. **Surf Scoter** ***Melanitta perspicillata*** Records from Angus & Dundee (two), Argyll and North-east Scotland.

Black-browed Albatross ***Thalassarche melanophris*** Minsmere (Suffolk), 12th July. **Zino's/Fea's Petrel** ***Pterodroma madeira/feae*** Galley Head, Ballycotton and Toe Head (all Co. Cork), 2nd August; one or two off Galley Head, 3rd August, one just south of Galley Head, 9th August. **Manx Shearwater** ***Puffinus puffinus*** Records included 15,000 past Pendeen (Cornwall) on 28th July and up to 3,000/hour past Portland Bill (Dorset) on the evening of 29th July. **Macaronesian Shearwater** ***Puffinus baroli*** Pendeen, 29th July. **Wilson's Storm-petrel** ***Oceanites oceanicus*** Mizen Head, 8th August, The Stags, 9th August, and Toe Head (all Co. Cork), 9th August.

Little Bittern ***Ixobrychus minutus*** Old Moor, long-stayer to 3rd August, presumed same Swillington Ings (both Yorkshire), 11th–12th July; Willington GP (Derbyshire), 2nd August. **Night Heron** ***Nycticorax nycticorax*** A long-stayer in Somerset, with others in Cornwall, Northamptonshire, Staffordshire, Warwickshire and Yorkshire. **Cattle Egret** ***Bubulcus ibis*** St Andrews (Fife), 29th July. **Purple Heron** ***Ardea purpurea*** King's Fleet (Suffolk), 14th July to 10th August; Cley (Norfolk), 22nd July.

Black Stork ***Ciconia nigra*** Wenhaston Marsh (Suffolk), 28th July; Greatham Creek (Cleveland), 1st August, same Haggerston (Northumberland), 2nd August, presumed same Spurn (Yorkshire), 3rd–10th August; another Blacktoft Sands (Yorkshire), 3rd August, then various localities in Lincolnshire south to Gibraltar Point, 3rd–8th August, possibly same Cley, 5th August; Hoveringham GP (Nottinghamshire), 4th August; Mickleby, 5th August, Wykeham Forest, 5th August, Welwick Marsh (all Yorkshire), 7th August; Loch of Strathbeg (North-east Scotland), 6th–9th August; Hythe, 7th August, same Dungeness (both Kent), 7th August; Arne (Dorset), 8th–9th August. **Glossy Ibis** ***Plegadis falcinellus*** Brough Airfield Marsh (Yorkshire), 1st–2nd August; Marloes Mere (Pembrokeshire), 1st August.

David Hosking

316. Terek Sandpiper *Xenus cinereus*, Burnham Deepdale, Norfolk, June 2015.

Black Kite *Milvus migrans* Bawdsey area (Suffolk), 21st July to 3rd August; Elmstead (Essex), 2nd August.

Black-winged Stilt *Himantopus himantopus* Cliffe Pools (Kent), 12th–15th July. **Kentish Plover** *Charadrius alexandrinus* Weymouth (Dorset), 3rd August. **Hudsonian Whimbrel** *Numenius hudsonicus* Pagham Harbour (Sussex), long-stayer to 27th July. **Hudsonian Godwit** *Limosa haemastica* Inishdawros, Ballyconneely (Co. Galway), 22nd July. **Broad-billed Sandpiper** *Calidris falcinellus* Snettisham (Norfolk), 18th–26th July. **White-rumped Sandpiper** *Calidris fuscicollis* Kilnsea/Spurn (Yorkshire), long-stayer to 7th August; Hatfield Moors (Yorkshire), 15th July; Tacumshin (Co. Wexford), 19th–21st July; North Ronaldsay (Orkney), 21st–24th July; Belfast Harbour Estate (Co. Antrim), 27th–29th July; South Gare (Cleveland), 4th August; Hickling Broad (Norfolk), 9th August. **Least Sandpiper** *Calidris minutilla* St Agnes (Scilly), 16th–24th July. **Terek Sandpiper** *Xenus cinereus* Burnham Deepdale (Norfolk), long-stayer seen again 5th–7th July. **Greater Yellowlegs** *Tringa melanoleuca* Titchfield Haven (Hampshire), long-stayer to 24th July.

Gull-billed Tern *Gelochelidon nilotica* Kingsteignton (Devon), 12th–17th July; Cley, 12th July; Chapel St Leonards (Lincolnshire), 16th July. **Caspian Tern** *Hydroprogne caspia* Holland Haven (Essex), 1st August; Holme (Norfolk), 9th August. **Whiskered Tern** *Chlidonias hybrida* Spurn, 4th August; Dungeness, 6th August. **White-winged Black Tern** *Chlidonias leucopterus* Dungeness, 18th July; Stanwick GP (Northamptonshire), 19th July; Rutland Water (Leicestershire & Rutland), 19th July; Westport Lake (Staffordshire), 8th August; Kilnsea, 9th August. **Bonaparte's Gull** *Chroicocephalus philadelphia* Oare Marshes (Kent), long-stayer to 8th August.

Snowy Owl *Bubo scandiacus* Arranmore Island (Co. Donegal), during the week prior to 19th July. **Alpine Swift** *Apus melba* Horsey (Norfolk), 5th August. **European Bee-eater** *Merops apiaster* Following the earlier influx, two pairs bred at Lower Gelt (Cumbria), with six adults from mid June to 31st July, at least two to 9th August (see N&c p. 504). Elsewhere flocks of up to ten in Suffolk and four in Kent, with other sightings in Cheshire & Wirral, Devon, Dorset, Co. Durham, Essex, Leicestershire & Rutland, Lincolnshire, Norfolk, Orkney, Sussex and Yorkshire. **Red-footed Falcon** *Falco vespertinus* Tunstall (Staffordshire), 9th July to 9th August.

Red-rumped Swallow *Cecropis daurica* Lerwick (Shetland), long-stayer to 14th July; High Island (Co. Galway), 6th August. **Greenish Warbler** *Phylloscopus trochiloides* Skokholm (Pembrokeshire), 23rd July. **Melodious Warbler** *Hippolais polyglotta* Hampton in Arden (West Midlands), long-stayer to 11th July; Blakeney Point (Norfolk), 31st July. **Aquatic Warbler** *Acrocephalus paludicola* Orford Ness (Suffolk), 9th August. **Paddyfield Warbler** *Acrocephalus agricola* Noss (Shetland), 22nd July to 9th August. **Rose-coloured Starling** *Pastor roseus* Lewis (Outer Hebrides), long-stayer to 29th July; Aberavon (Gwent), 31st July to 5th August; Fair Isle, long-stayer, 1st–4th August. **Black-headed Bunting** *Emberiza melanocephala* Nanjizal (Cornwall), 8th August.

Richard Stonier

317. First-summer male Red-footed Falcon *Falco vespertinus*, Tunstall, Staffordshire, July 2015.

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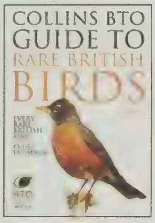

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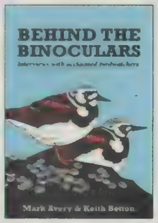

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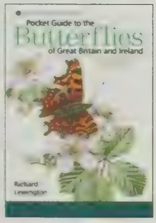

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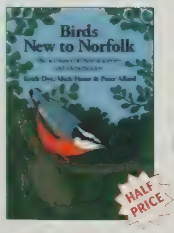

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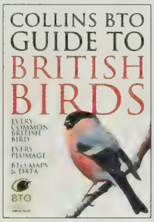

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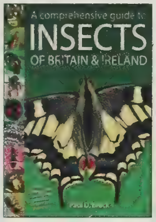

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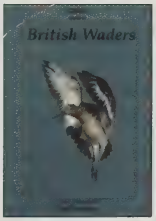

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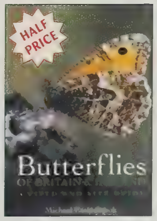

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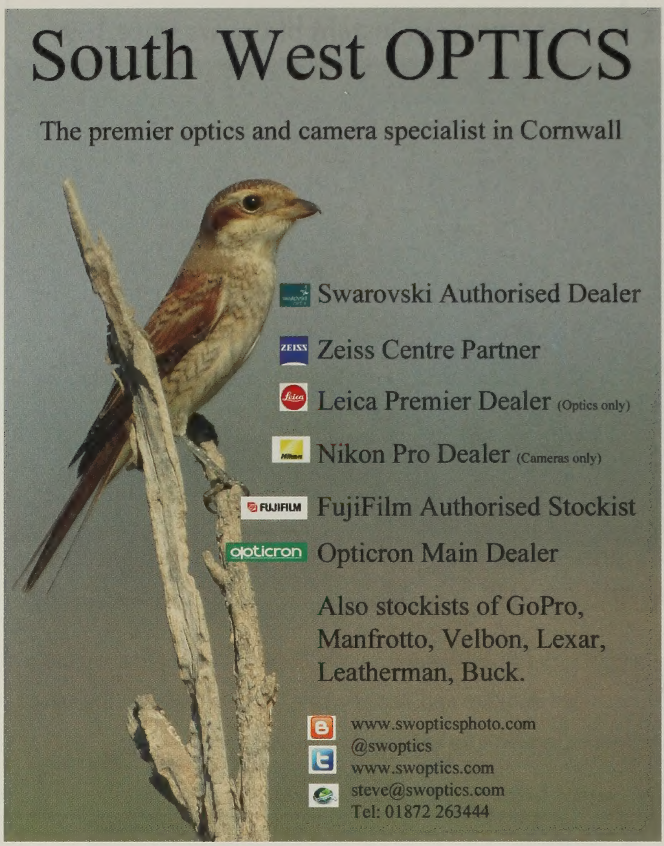

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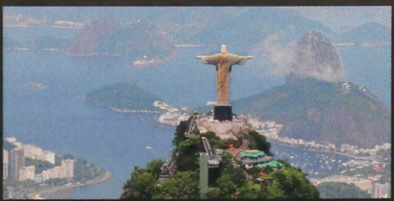

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100% made in Japan and featuring an HD optical system for sensational images and superb colour contrast, the Verano BGA HD guarantees you the highest levels of comfort and performance whenever and wherever you use them.

Features include class leading fields of view with or without glasses, close focus to 2m and a comprehensive 30 year guarantee for peace of mind.

Recommended by BTO — The Verano BGA HD 8x42 is recommended by the British Trust for Ornithology.

8x32 £399, 8x42 £409, 10x42 £419

HR ED Fieldscopes

Designed and engineered without compromise, HR ED fieldscopes deliver exceptional optical performance combined with sublime handling and total reliability. 30 year guarantee.

Bodies (Str or 45°): **HR 66 GA ED £699, HR 80 GA ED £849**
Recommended Eyepieces: **SDLv2 18-54x/24-72x £289, HDF T 20xWW/27xWW £139**
HDF T 28xWW/38xWW £159, Range of telephoto options available

Phonescoping Adapters

Opticron smartphone photoadapters are a convenient and inexpensive way of attaching your smartphone to your Opticron spottingscope eyepiece and shooting high magnification photos and video. **Available for iPhone 4/4S, 5/5S & 6 and Samsung Galaxy S3/S4/S5. Prices from £49.95**

Opticron equipment can be tried, tested and purchased at good optical retailers nationwide. For more information and to order a Product Guide please phone 01582 726522 or visit us online at www.opticron.co.uk

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